Kuwait

Country Overview

Formerly a British protectorate, the Kingdom of Kuwait gained independence in 1961. Situated on the northwestern coast of the Gulf, it is bordered to the north by Iraq and to the south by Saudi Arabia. The country's total area, including the islands of Bubiyan, Warbah, and Faylakah, is 6,880 square miles. It has a 269 n mile coastline with the Gulf. The capital, largest city and principal port is Kuwait City. The country was annexed by Iraq from August 1990 to February 1991 when the country was liberated. Territorial seas (12 n miles) are claimed. An EEZ has not been claimed.

Headquarters Appointments

Commander of the Navy:
Brigadier Ahmed Yousuf Al Mulla
Director of Coast Guard:
Lieutenant Colonel Sayid Al-Buaijan

Personnel

2004: 2,700 (including 500 Coast Guard)

Aviation

The Air Force operates four Aerospatiale AS 332F Super Puma helicopters armed with Exocet AM 39 ASMs and 40 F/A-18 Hornets.

Bases

Navy: Ras Al Qalayah
Coast Guard: Shuwaikh, Umm Al-Hainan, Al-Bida

PATROL FORCES

Notes: There is a requirement for up to four 88 m OPVs armed with SSMs.

8 UM ALMARADIM (COMBATTANTE I) CLASS (PBM)

Name	*No*	*Builders*	*Launched*	*Commissioned*
UM ALMARADIM	P 3711	CMN, Cherbourg	27 Feb 1997	31 July 1998
OUHA	P 3713	CMN, Cherbourg	29 May 1997	31 July 1998
FAILAKA	P 3715	CMN, Cherbourg	29 Aug 1997	19 Dec 1998
MASKAN	P 3717	CMN, Cherbourg	6 Jan 1998	19 Dec 1998
AL-AHMADI	P 3719	CMN, Cherbourg	2 Apr 1998	1 July 1999
ALFAHAHEEL	P 3721	CMN, Cherbourg	16 June 1998	1 July 1999
AL-YARMOUK	P 3723	CMN, Cherbourg	3 Mar 1999	7 June 2000
GAROH	P 3725	CMN, Cherbourg	June 1999	7 June 2000

Displacement, tons: 245 full load
Dimensions, feet (metres): 137.8 oa; 121.4 wl × 26.9 × 6.2 *(42; 37 × 8.2 × 1.9)*
Main machinery: 2 MTU 16V 538 TB93 diesels; 4,000 hp(m) *(2.94 MW)*; 2 Kamewa waterjets
Speed, knots: 30. **Range, miles:** 1,350 at 14 kt
Complement: 29 (5 officers)

Missiles: SSM: 4 BAe Sea Skua (2 twin). Semi-active radar homing to 15 km *(8.1 n miles)* at 0.9 Mach.
SAM: Sadral sextuple launcher fitted for only.
Guns: 1 Otobreda 40 mm/70; 120 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
1 Giat 20 mm M 621. 2—12.7 mm MGs.
Countermeasures: Decoys: 2 Dagaie Mk 2 chaff launchers fitted for only.
ESM: Thomson-CSF DR 3000 S1; intercept.
Combat data systems: Thomson-CSF TAVITAC NT; Link Y.
Weapons control: CS Defence Najir Mk 2 optronic director.
Radars: Air/surface search: Thomson-CSF MRR; 3D; G-band.
Fire control: BAe Seaspray Mk 3; I/J-band (for SSM).
Navigation: Litton Marine 20V90; I-band.

Programmes: Contract signed with CMN Cherbourg on 27 March 1995. First steel cut 9 June 1995. Names are taken from former Kuwaiti patrol craft.
Structure: Late decisions were made on the missile system which has been fitted in the last pair on build and to the remainder from 2000. Provision is also made for Simbad SAM and Dagaie decoy launchers, which may be fitted later. Positions of smaller guns are uncertain.
Operational: Training done in France. The aim is to have 10 crews capable of manning the eight ships. First four arrived in the Gulf in mid-August 1999, second four arrived in mid-2000.

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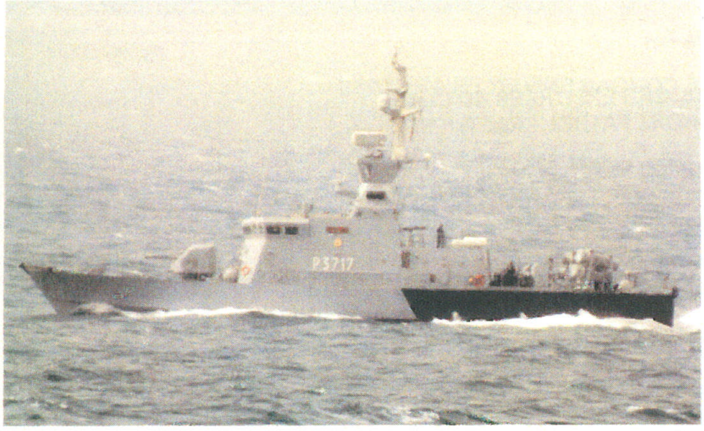
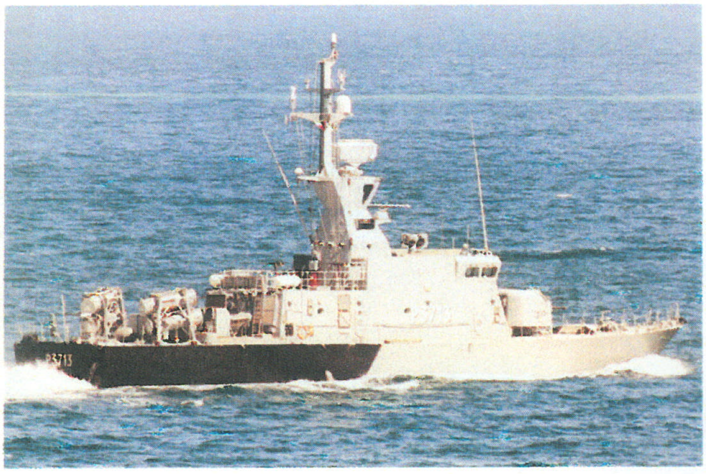


MASKAN *5/2003*, A Sharma* / 0559834



OUHA *3/2003*, A Sharma* / 0568871

1 TNC 45 TYPE (FAST ATTACK CRAFT—MISSILE) (PGGF)

Name	*No*	*Builders*	*Commissioned*
AL SANBOUK	P 4505	Lürssen, Vegesack	26 Apr 1984

Displacement, tons: 255 full load
Dimensions, feet (metres): 147.3 × 23 × 7.5 *(44.9 × 7 × 2.3)*
Main machinery: 4 MTU 16V 538 TB92 diesels; 13,640 hp(m) *(10 MW)* sustained; 4 shafts
Speed, knots: 41. **Range, miles:** 1,800 at 16 kt
Complement: 35 (5 officers)

Missiles: SSM: 4 Aerospatiale MM 40 Exocet; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
2 Breda 40 mm/70 (twin); 300 rds/min to 12.5 km *(6.6 n miles)*; weight of shell 0.96 kg.
Countermeasures: Decoys: CSEE Dagaie; IR flares and chaff; H/J-band.
ESM: Racal Cutlass; intercept.
Weapons control: PEAB 9LV 228 system; Link Y; CSEE Lynx optical sight.
Radars: Air/surface search: Ericsson Sea Giraffe 50HC; G/H-band.
Fire control: Philips 9LV 200; J-band.
Navigation: Decca TM 1226C; I-band.

Programmes: Six ordered from Lürssen in 1980 and delivered in 1983-84.
Operational: *Al Sanbouk* escaped to Bahrain when the Iraqis invaded in August 1990, but the rest of this class was taken over by the Iraqi Navy, and either sunk or severely damaged by Allied forces in February 1991. The ship was refitted by Lürssen in 1995.

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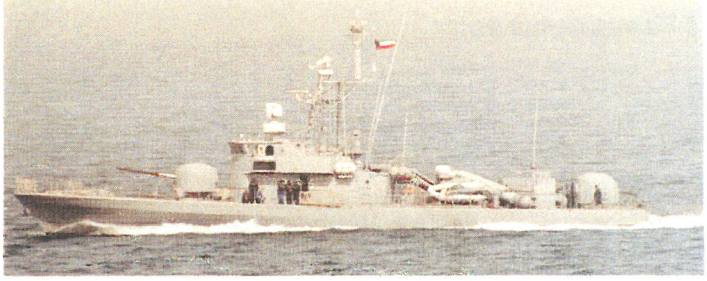

AL SANBOUK *3/2003*, A Sharma* / 0568872

1 FPB 57 TYPE (FAST ATTACK CRAFT—MISSILE) (PGGF)

Name	*No*	*Builders*	*Commissioned*
ISTIQLAL	P 5702	Lürssen, Vegesack	9 Aug 1983

Displacement, tons: 410 full load
Dimensions, feet (metres): 190.6 × 24.9 × 8.9 *(58.1 × 7.6 × 2.7)*
Main machinery: 4 MTU 16V 956 TB91 diesels; 15,000 hp(m) *(11 MW)* sustained; 4 shafts
Speed, knots: 36. **Range, miles:** 1,300 at 30 kt
Complement: 40 (5 officers)

Missiles: SSM: 4 Aerospatiale MM 40 Exocet; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
2 Breda 40 mm/70 (twin); 300 rds/min to 12.5 km *(6.6 n miles)*; weight of shell 0.96 kg.
Mines: Fitted for minelaying.
Countermeasures: Decoys: CSEE Dagaie trainable mounting; automatic dispenser; IR flares and chaff; H/J-band.
ESM: Racal Cutlass; radar intercept.
ECM: Racal Cygnus; jammer.
Weapons control: PEAB 9LV 228 system; Link Y; CSEE Lynx optical sight.
Radars: Surface search: Marconi S 810 (after radome); I-band; range 43 km *(25 n miles)*.
Navigation: Decca TM 1226C; I-band.
Fire control: Philips 9LV 200; J-band.

Programmes: Two ordered from Lürssen in 1980.
Operational: *Istiqlal* escaped to Bahrain when the Iraqis invaded in August 1990. The second of this class was captured and sunk in February 1991. Having been laid up since 1997 *Istiqlal* was transported to Lürssen for refit in February 2003.

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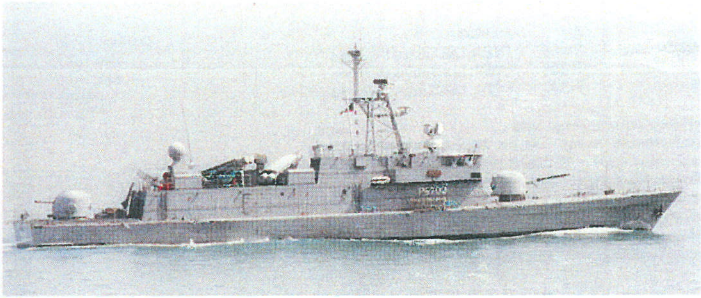

ISTIQLAL *6/1993* / 0081177

4 INTTISAR (OPV 310) CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
INTTISAR	P 301	Australian Shipbuilding Industries	20 Jan 1993
AMAN	P 302	Australian Shipbuilding Industries	20 Jan 1993
MAIMON	P 303	Australian Shipbuilding Industries	7 Aug 1993
MOBARK	P 304	Australian Shipbuilding Industries	7 Aug 1993

Displacement, tons: 150 full load
Dimensions, feet (metres): 103.3 oa; 88.9 wl × 21.3 × 6.6 *(31.5; 27.1 × 6.5 × 2)*
Main machinery: 2 MTU 16V 396 TB94 diesels; 5,800 hp(m) *(4.26 MW)* sustained; 2 shafts; 1 MTU 8V 183 TE62 diesel; 750 hp(m) *(550 kW)* maximum; 1 Hamilton 422 water-jet
Speed, knots: 28. **Range, miles:** 300 at 28 kt
Complement: 11 (3 officers)
Guns: 1 Oerlikon 20 mm. 1—12.7 mm MG.
Radars: Surface search: 2 Racal Decca; I-band.

Comment: First two ordered from Australian Shipbuilding Industries in 1991. Second pair ordered in July 1992. Steel hulls, aluminium superstructure. The third engine drives a small waterjet to provide a loiter capability. Carries an RIB. Used by the Coast Guard.

VERIFIED

AMAN *1992, Australian Shipbuilding Industries* / 0081178

4 + 6 SUBAHI CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
SUBAHI	P 308	OCEA, St Nazaire	15 Oct 2003
JABERI	P 309	OCEA, St Nazaire	Jan 2004
SAAD	P 310	OCEA, St Nazaire	Feb 2004
AHMADI	P 311	OCEA, St Nazaire	Mar 2004

Displacement, tons: 116 full load
Dimensions, feet (metres): 115.5 × 22.3 × 4.0 *(35.2 × 6.8 × 1.2)*
Main machinery: 2 MTU 12V 4000 M70 diesels; 4,600 hp *(3.43 MW)*; 2 Kamewa waterjets
Speed, knots: 32. **Range, miles:** 300 at 28 kt
Complement: 11 (3 officers)
Guns: 1 Oerlikon 20 mm. 2—12.7 mm MGs.
Radars: Sperry Bridgemaster E; I-band.

Comment: Built by OCEA, France based on 'Al Shaheed' class design. Aluminium construction. Operated by the Coast Guard. A class of 10 is planned for delivery by 2005.

NEW ENTRY

SUBAHI *8/2003*, B Prézelin* / 0558661

30 AL-SHAALI TYPE (INSHORE PATROL CRAFT) (PBF)

Comment: Ten 10 m and 23 8.5 m patrol craft built by Al-Shaali Marine, Dubai, and delivered in June 1992. Also used by UAE Coast Guard. More Rapid Intervention patrol craft are to be acquired in due course.

UPDATED

3 AL SHAHEED CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
AL SHAHEED	P 305	OCEA, Les Sables d'Olonne	July 1997
BAYAN	P 306	OCEA, Les Sables d'Olonne	Apr 1999
DASMAN	P 307	OCEA, Les Sables d'Olonne	2001

Displacement, tons: 104 full load
Dimensions, feet (metres): 109.3 × 23 × 4 *(33.3 × 7 × 1.2)*
Main machinery: 2 MTU 12V 396 TE94; 4,352 hp(m) *(3.2 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 360 at 25 kt
Complement: 11 (3 officers)
Guns: 1 Oerlikon 20 mm. 2—12.7 mm MGs.
Radars: Surface search: Racal Decca 20V 90 TA; E/F-band.
Navigation: Racal Decca Bridgemaster ARPA; I-band.

Comment: Built by OCEA, France to FPB 100K design. Operated by the Coast Guard.

UPDATED

AL SHAHEED *10/1997, Ships of the World* / 0012718

0 + 3 INSHORE PATROL CRAFT (PBR)

Displacement, tons: to be announced
Dimensions, feet (metres): 70.9 × 19.5 × 4.9 *(21.6 × 5.96 × 1.5)*
Main machinery: 2 MAN D2842 LE 408; 1,970 hp *(1.47 MW)*; 2 shafts
Speed, knots: 25. **Range, miles:** 325 at 25 kt
Complement: 3 + 41 passengers
Radars: Navigation: to be announced.

Comment: Order for three craft for the Coast Guard announced on 7 January 2003. Based on the 22 m craft in service with the New South Wales Police, the vessels are to be constructed by Austal Ships subsidiary, Image Marine for delivery in 2004.

NEW ENTRY

12 MANTA CLASS (INSHORE PATROL CRAFT) (PBF)

1B 1501-1523 series

Displacement, tons: 10 full load
Dimensions, feet (metres): 45.9 × 12.5 × 2.3 *(14 × 3.8 × 0.7)*
Main machinery: 2 Caterpillar 3208 diesels; 810 hp(m) *(595 kW)* sustained; 2 shafts
Speed, knots: 40. **Range, miles:** 180 at 35 kt
Complement: 4
Guns: 3 Herstal M2HB 12.7 mm MGs.
Radars: Surface search: Furuno; I-band.

Comment: Original craft ordered in September 1992 from Simonneau Marine and delivered in 1993. Aluminium construction. This version has two inboard engines. Pennant numbers are in odd number sequence. All the class reported to be inoperable due to technical problems. An underlying cause may be that the boats were fitted with inboard engines although designed for outboards.

VERIFIED

MANTA 1501 *11/1996* / 0012719

6 COUGAR ENFORCER 40 CLASS (INSHORE PATROL CRAFT) (PBF)

Displacement, tons: 5.7 full load
Dimensions, feet (metres): 40 × 9 × 2.1 *(12.2 × 2.8 × 0.8)*
Main machinery: 2 Sabre 380 S diesels; 760 hp(m) *(559 kW)*; 2 Arneson ASD 8 surface drives; 2 shafts
Speed, knots: 45. **Range, miles:** 250 at 35 kt
Complement: 4
Guns: 1—12.7 mm MG.
Radars: Surface search: Koden; I-band.

Comment: First one completed in July 1996 for the Coastguard by Cougar Marine, Warsash. The craft has a V monohull design.

VERIFIED

ENFORCER 40 *7/1996, Cougar Marine* / 0081179

17 + (6) COUGAR TYPE (INSHORE PATROL CRAFT) (PBF)

Comment: Three Cat 900 (32 ft) and six Predator 1100 (35 ft) all powered by two Yamaha outboards (400 hp(m) *(294 kW)*). Four Type 1200 (38 ft) and four Type 1300 (41 ft) all powered by two Sabre diesels (760 hp(m) *(559 kW)*). All based on the high-performance planing hull developed for racing, and acquired in 1991-92. Most have a 7.62 mm MG and a Kroden I-band radar. Used by the Coast Guard. Most have K numbers on the side. More may be ordered.
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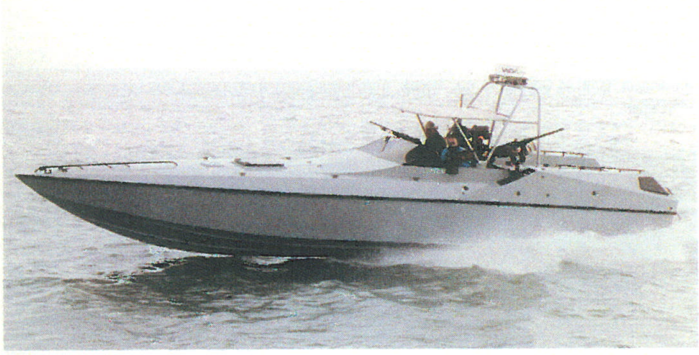
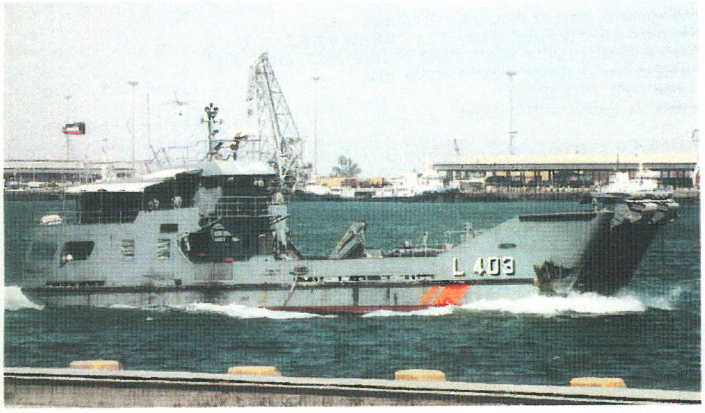


COUGAR 1200 *1991, Cougar Marine* / 0081180

AUXILIARIES

Notes: (1) There are some unarmed craft with Sawahil numbers which are not naval.
(2) A 95 m ship of about 2,000 tons is required to act as a support ship for patrol vessels. It would also be equipped to undertake a training role. Revised bids were submitted in June 2001 but there have been no further developments.
(3) An LCU, L 403, is also in service.



L 403 *5/2001* / 0525907

2 AL TAHADDY CLASS (LCU)

Name	*No*	*Builders*	*Commissioned*
AL SOUMOOD	L 401	Singapore SBEC	July 1994
AL TAHADDY	L 402	Singapore SBEC	July 1994

Displacement, tons: 215 full load
Dimensions, feet (metres): 141.1 × 32.8 × 6.2 *(43 × 10 × 1.9)*
Main machinery: 2 MTU diesels; 2 shafts
Speed, knots: 13
Complement: 12
Military lift: 80 tons
Radars: Navigation: Racal Decca; I-band.

Comment: Ordered in 1993 and launched on 15 April 1994. Multipurpose supply ships with cargo tanks for fuel, fresh water, refrigerated stores and containers on the main deck. Has 3 ton crane. Capable of beaching. Used by the Coast Guard and have replaced the old Loadmasters.
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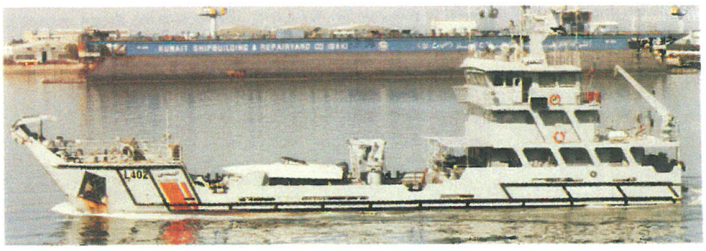

AL TAHADDY *1/1999, Maritime Photographic* / 0053294

1 SUPPORT SHIP (AGH)

QARUH S 5509

Measurement, tons: 545 dwt
Dimensions, feet (metres): 181.8 × 31.5 × 6.6 *(55.4 × 9.6 × 2)*
Main machinery: 2 diesels; 2,400 hp(m) *(1.76 MW)*; 2 shafts
Speed, knots: 9
Complement: 40
Guns: 2—12.7 mm MGs.
Radars: Navigation: Racal Decca; I-band.

Comment: This is a 'Sawahil' class oil rig replenishment and accommodation ship which was built in South Korea in 1986 and taken on by the Coast Guard in 1990. She escaped to Bahrain during the Iraqi invasion, and is back in service. High-level helicopter platform aft. Used as a utility transport. Refitted in 1996/97.
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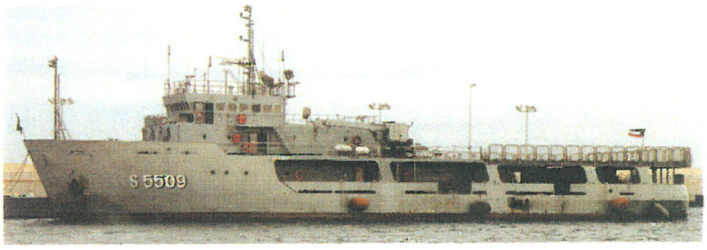
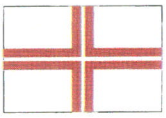


QARUH *11/1997, Kuwait Navy* / 0012721

Latvia

LATVIJAS JURAS SPEKI



Country Overview

The Republic of Latvia regained independence in 1991 after 51 years as a Soviet republic. Situated in northeastern Europe, the country has an area of 24,938 square miles and borders to the north with Estonia, east with Russia and to the south with Belarus and Lithuania. It has a 286 n mile coastline with the Baltic Sea. Riga is the capital, largest city and principal port. Territoral seas (12 n miles) are claimed but while it has claimed a 200 n mile Exclusive Economic Zone (EEZ), its limits have not been fully defined by boundary agreements.

Headquarters Appointments

Commander of the Navy:
Captain Ilmars Lešinskis

Bases

Liepaja, Ventspils, Riga

Personnel

2004: 800 Navy (including Coast Guard)

Coast Guard

These ships have a diagonal thick white and thin white line on the hull, and have KA numbers. They operate as part of the Navy.

DELETIONS

Patrol Forces

2001 *Zibens, Heindrich Dor, Spulga*

PATROL FORCES

4 STORM CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
ZIBENS (ex-*Djerv*)	P 01 (ex-P 966)	Westermoen, Mandal	1966
LODE (ex-*Hvass*)	P 02 (ex-P 972)	Westermoen, Mandal	1966
LINGA (ex-*Gnist*)	P 03 (ex-P 979)	Bergens Mek Verksteder	1967
BULTA (ex-*Traust*)	P 04 (ex-P 973)	Bergens Mek Verksteder	1967

Displacement, tons: 135 full load
Dimensions, feet (metres): 120 × 20 × 5 *(36.5 × 6.1 × 1.5)*
Main machinery: 2 MTU MB 872A diesels; 7,200 hp(m) *(5.3 MW)* sustained; 2 shafts
Speed, knots: 32
Complement: 20 (4 officers)
Guns: 1 Bofors 40 mm/60 (P 04). 1 TAK Bofors 76 mm; 1 Bofors 40 mm/70 (P 02 and P 03).
Radars: Surface search: Racal Decca TM 1226; I-band.

Comment: P 04 disarmed and acquired from Norway on 13 December 1994 as a gun patrol craft. Recommissioned 1 February 1995 at Liepaja. 40 mm gun fitted aft in 1998. P 01, P 02 and P 03 transferred from Norway and recommissioned 11 June 2001. Other craft given to Lithuania and Estonia.
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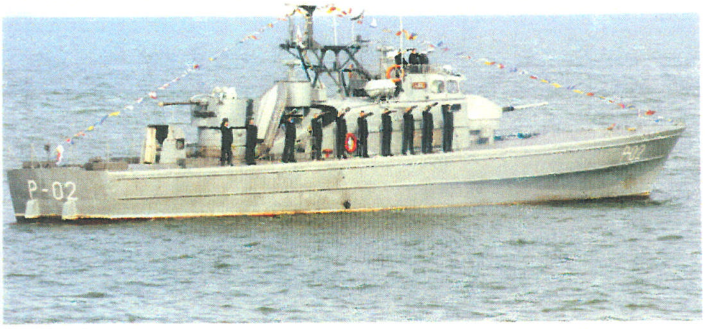

LODE *7/2003*, Guy Toremans* / 0561533

MINE WARFARE FORCES

1 LINDAU (TYPE 331) CLASS (MINEHUNTER) (MHC)

Name	*No*	*Builders*	*Commissioned*
NEMEJS (ex-*Völklingen*)	M 03 (ex-M 1087)	Burmester, Bremen	21 May 1960

Displacement, tons: 463 full load
Dimensions, feet (metres): 154.5 × 27.2 × 9.8 (9.2 Troika) *(47.1 × 8.3 × 3) (2.8)*
Main machinery: 2 MTU MD 871 UM/1D diesels; 4,000 hp(m) *(2.94 MW)*; 2 shafts
Speed, knots: 16.5. **Range, miles:** 850 at 16.5 kt
Complement: 45 (9 officers)
Guns: 1 Bofors 40 mm/70.
Radars: Navigation: Raytheon, SPS 64; I-band.
Sonars: Plessey 193 m; minehunting; high frequency (100/300 kHz).

Comment: Acquired in June 1999 from Germany. Recommissioned 1 October 1999. Hull is of wooden construction. Converted to minehunter 1979. PAP 105 ROV fitted. Based at Lepaja. *Göttingen* transferred 24 January 2001 for spares.

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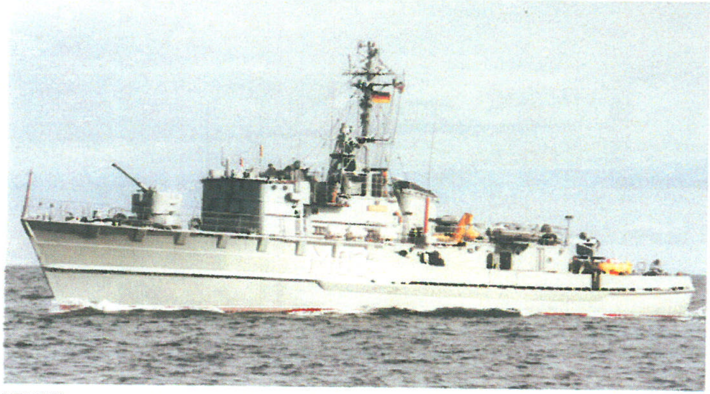

NEMEJS *6/2002, Frank Findler* / 0524991

2 KONDOR II (TYPE 89.2) CLASS (MINESWEEPERS) (MSC)

Name	*No*	*Builders*	*Commissioned*
VIESTURS (ex-*Kamenz*)	M 01 (ex-351)	Peenewerft, Wolgast	24 July 1971
IMANTA (ex-*Röbel*)	M 02 (ex-324)	Peenewerft, Wolgast	1 Dec 1971

Displacement, tons: 410 full load
Dimensions, feet (metres): 186 × 24.6 × 7.9 *(56.7 × 7.5 × 2.4)*
Main machinery: 2 Type 40D diesels; 4,408 hp(m) *(3.24 MW)*; 2 shafts; cp props
Speed, knots: 17
Complement: 31 (6 officers)
Guns: 2 Wrobel ZU 23-2MR 23 mm (twin). 2 FK 20 20 mm.
Radars: Surface search: Racal Decca; I-band.

Comment: Former GDR vessels transferred from Germany on 30 August 1993. Weapons and minesweeping equipment were removed on transfer. New guns have been fitted and ex-German 'Shultz' class minesweeping gear was installed in 1997. Both recommissioned in April 1994. Based at Liepaja.

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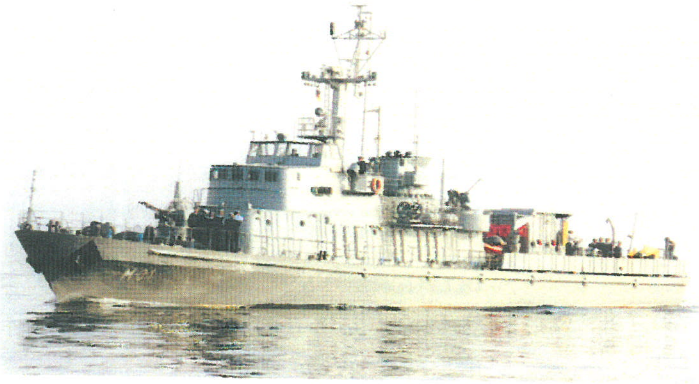
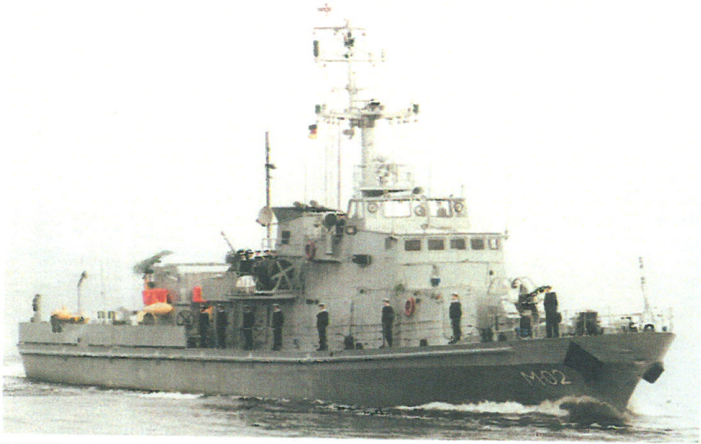


VIESTURS *6/2001, Findler & Winter* / 0114735



IMANTA *4/2002, Guy Toremans* / 0524990

AUXILIARIES

1 GOLIAT CLASS (PROJECT 667R) (ATA)

PERKONS A 18 (ex-*H 18*)

Displacement, tons: 150 full load
Dimensions, feet (metres): 70.2 × 20 × 8.5 *(21.4 × 6.1 × 2.6)*
Main machinery: 1 Buckau-Wolf 8NVD diesel; 300 hp(m) *(221 kW)*; 1 shaft
Speed, knots: 9
Complement: 8 (2 officers)

Comment: Built at Gdynia in the 1960s and transferred from Poland 16 November 1993 at Liepaja.

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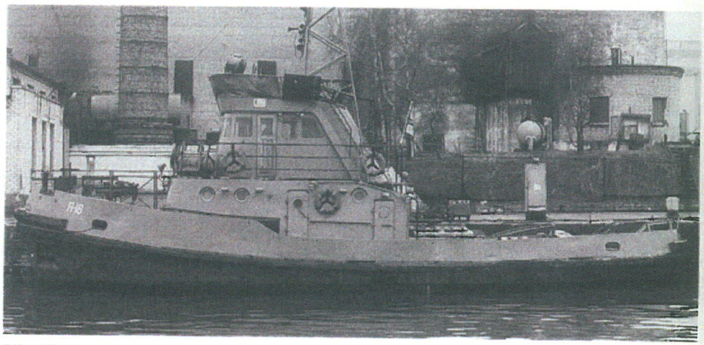

PERKONS *4/1995, Hartmut Ehlers*

1 NYRYAT 1 CLASS (DIVING TENDER) (YDT)

LIDAKA (ex-*Gefests*) A 51 (ex-A 101)

Displacement, tons: 92 standard; 116 full load
Dimensions, feet (metres): 93.8 × 17.1 × 5.6 *(28.6 × 5.2 × 1.7)*
Main machinery: 1 6CSP 28/3C diesel; 450 hp(m) *(331 kW)*; 1 shaft
Speed, knots: 11. **Range, miles:** 1,500 at 10 kt
Complement: 18 (3 officers)
Radars: Navigation: SNN-7; I-band.

Comment: Former SAR vessel acquired in 1992. Based at Liepaja.

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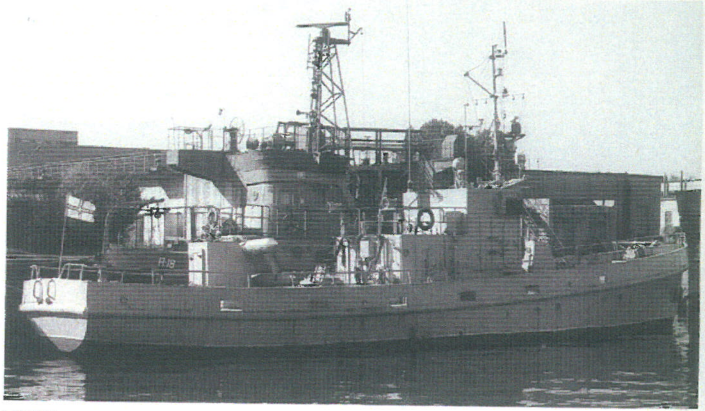


LIDAKA *9/1996, Hartmut Ehlers*

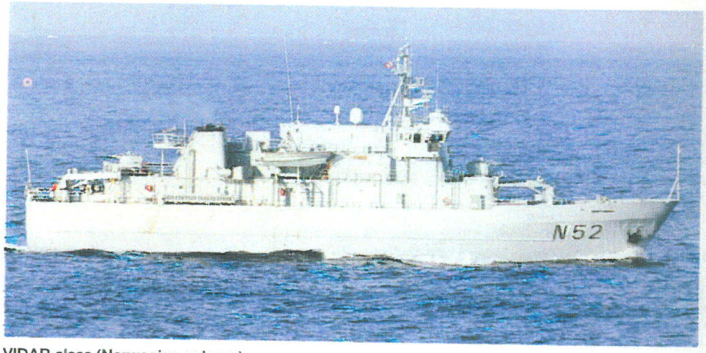
1 VIDAR CLASS (MCCS/AG)

Name	*No*	*Builders*	*Launched*	*Commissioned*
VIRSAITIS (ex-*Vale*)	A 53 (ex-N 53)	Mjellem and Karlsen, Bergen	5 Aug 1977	10 Feb 1978

Displacement, tons: 1,500 standard; 1,673 full load
Dimensions, feet (metres): 212.6 × 39.4 × 13.1 *(64.8 × 12 × 4)*
Main machinery: 2 Wichmann 7AX diesels; 4,200 hp(m) *(3.1 MW)*; 2 shafts; auxiliary motor; 425 hp(m) *(312 kW)*; bow thruster
Speed, knots: 15
Complement: 50
Radars: Surface search: 2 Racal Decca TM 1226; I-band.
Sonars: Simrad; hull-mounted; search and attack; medium/high frequency.

Programmes: Decommissioned from Norwegian Navy in 2001 and transferred to Latvia on 27 January 2003.
Operational: Former minelayer modified to undertake command and support roles. Additional tasks are likely to include ecological survey, oil recovery and support of diving operations.

NEW ENTRY



VIDAR class (Norwegian colours) *3/2001, A Sharma* / 0130097

COAST GUARD

1 RIBNADZOR-4 CLASS (WPB)

COMETA KA 03 (ex-KA 103)

Displacement, tons: 160 full load
Dimensions, feet (metres): 114.8 × 22 × 5.6 *(35 × 6.7 × 1.7)*
Main machinery: 1 40 DMM3 diesel; 2,200 hp(m) *(1.62 MW)*; 1 shaft
Speed, knots: 15
Complement: 17 (3 officers)
Guns: 1—12.7 mm MG.
Radars: Surface search: MIUS; I-band.

Comment: Ex-fishing vessel built in 1978 and converted in 1992. Recommissioned 5 May 1992 at Bolderaja. Refitted in 1998. Belongs to Coast Guard. Sister ship *Spulga* lost in 2000.
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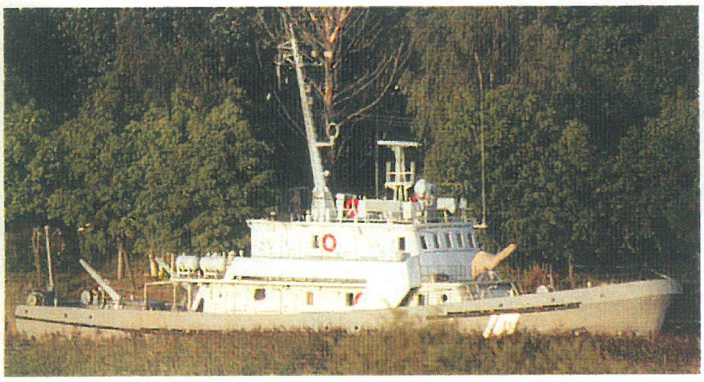


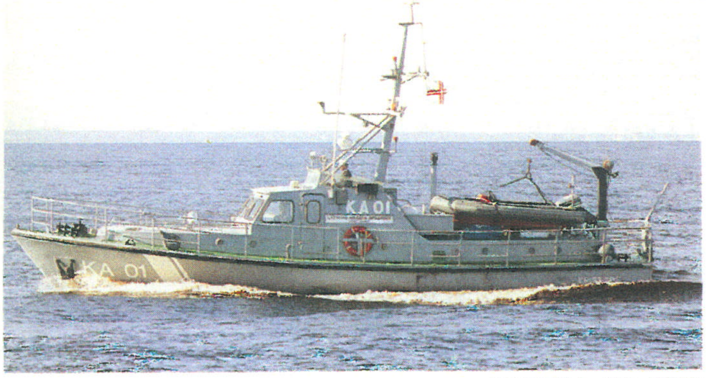
COMETA *8/1994, E & M Laursen* / 0081182

5 KBV 236 CLASS (WPB)

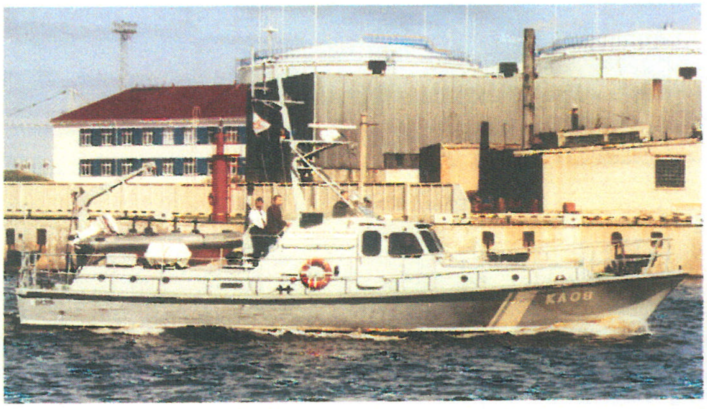
KRISTAPS KA 01 (ex-KBV 244)
GAISMA KA 06 (ex-KBV 249)
AUSMA KA 07 (ex-KBV 260)
SAULE KA 08 (ex-KBV 256)
KLINTS KA 09 (ex-KBV 250)

Displacement, tons: 17 full load
Dimensions, feet (metres): 63 × 13.1 × 4.3 *(19.2 × 4 × 1.3)*
Main machinery: 2 Volvo Penta TMD 100C diesels; 526 hp(m) *(387 kW)*; 2 shafts
Speed, knots: 20
Complement: 3 (1 officer)
Radars: Navigation: Raytheon or Furuno; I-band.

Comment: Former Swedish Coast Guard vessel built in 1964. First one recommissioned 5 March 1993, second pair 9 November 1993 and last pair 27 April 1994. KA 01, 06 and 09 are based at Bolderaja, 07 at Liepaja and 08 at Ventspils. Not all are identical. All belong to Coast Guard.
UPDATED



KRISTAPS *9/2000, Michael Nitz* / 0097751



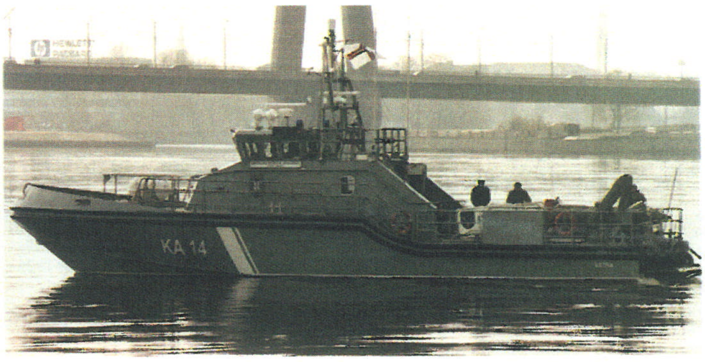
SAULE *10/2000, van Ginderen Collection* / 0114738

1 PATROL CRAFT (WPB)

ASTRA KA 14

Displacement, tons: 22 full load
Dimensions, feet (metres): 74.8 × 18.4 × 9.2 *(22.8 × 5.6 × 2.8)*
Main machinery: 3 Scania D91 1467M diesels; 1,850 hp *(1.38 MW)*
Speed, knots: 25. **Range, miles:** 575 at 25 kt
Complement: 4 (1 officer)
Radars: Navigation: Furuno; I-band.

Comment: Built in Finland in 1996. Commissioned on 12 March 2001.
UPDATED



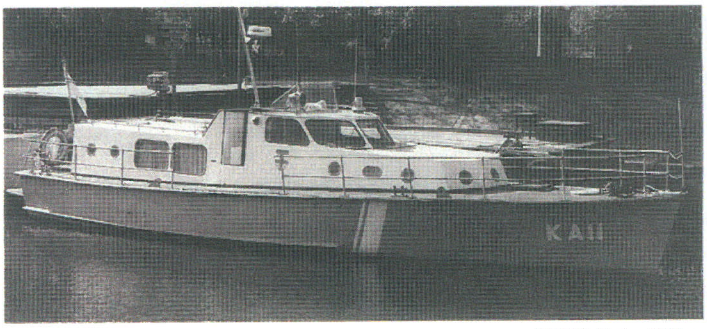
ASTRA *4/2002, Guy Toremans* / 0524992

3 HARBOUR PATROL CRAFT (WPB)

KA 10 **KA 11** **GRANATA** KA 12

Displacement, tons: 9.6 full load *(KA 10-11)*; 5.4 full load *(KA 12)*
Dimensions, feet (metres): 41.3 × 10.5 × 2 *(12.6 × 3.2 × 0.6)*
Main machinery: 1 3D6C diesel; 150 hp(m) *(110 kW)*; 1 shaft
Speed, knots: 13
Complement: 2
Radars: Navigation: Furuno; I-band.

Comment: Former USSR craft. *KA 10* and *11* were 'Sverdlov' class cruiser boats. KA 12 is an ex-Border Guard launch of 9 m with a 300 hp(m) *(220 kW)* engine and a speed of 18 kt. All acquired in 1993-94. All belong to Coast Guard.
UPDATED



KA 11 *9/1996, Hartmut Ehlers*

1 VALPAS CLASS (OFFSHORE PATROL VESSEL) (WPBO)

VALPAS

Displacement, tons: 545 full load
Dimensions, feet (metres): 159.1 × 27.9 × 12.5 *(48.5 × 8.5 × 3.8)*
Main machinery: 1 Werkspoor diesel; 2,000 hp(m) *(1.47 MW)*; 1 shaft; cp prop
Speed, knots: 15
Complement: 18
Guns: 1 Oerlikon 20 mm.
Sonars: Simrad SS105; active scanning; 14 kHz.

Comment: An improvement on the *Silmä* design. Built by Laivateollisuus, Turku, and commissioned 21 July 1971. Ice strengthened. Donated by Finland on 25 September 2002 and operated by State Border Security Service.
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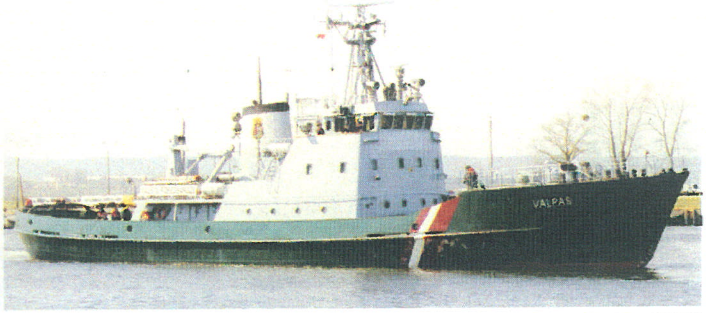

VALPAS *5/2003*, J Ciślak* / 0568321

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit

Lebanon

Country Overview

The Lebanese Republic gained independence from France in 1946 but was devastated by civil war between 1975-1991. Situated on the eastern shore of the Mediterranean Sea, it has an area of 4,015 square miles and is bordered to the north and east by Syria and to the south by Israel. It has a 121 n mile coastline with the Mediterranean Sea. The capital, largest city and principal port is Beirut. Other important ports include Tripoli and Sidon. Territorial seas (12 n miles) are claimed but an EEZ is not claimed.

Headquarters Appointments

Armed Forces Commander:
General Michel Sleiman

Personnel

2004: 1,151 (45 officers)

Bases

Beirut (HQ), Jounieh

PATROL FORCES

2 FRENCH EDIC CLASS (LST)

Name	*No*	*Builders*	*Commissioned*
SOUR	21	SFCN, Villeneuve la Garonne	28 Mar 1985
DAMOUR	22	SFCN, Villeneuve la Garonne	28 Mar 1985

Displacement, tons: 670 full load
Dimensions, feet (metres): 193.5 × 39.2 × 4.2 *(59 × 12 × 1.3)*
Main machinery: 2 SACM MGO 175 V12 M1 diesels; 1,200 hp(m) *(882 kW)*; 2 shafts
Speed, knots: 10. **Range, miles:** 1,800 at 9 kt
Complement: 20 (2 officers)
Military lift: 96 troops; 11 trucks or 8 APCs
Guns: 2 Oerlikon 20 mm. 1—81 mm mortar. 2—12.7 mm MGs. 1—7.62 mm MG.
Radars: Navigation: Decca; I-band.

Comment: Both were damaged in early 1990 but repaired in 1991 and are fully operational. Used by the Marine Regiment formed in 1997.
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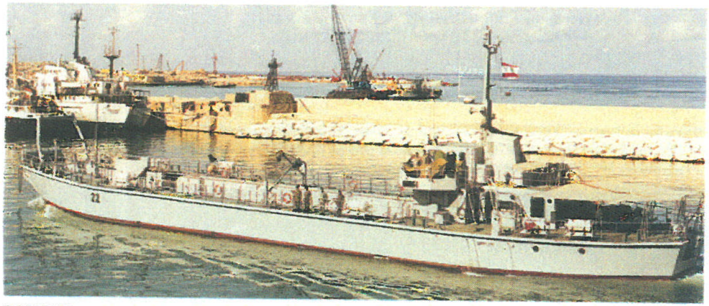

DAMOUR *2/2000* / 0097755

2 TRACKER Mk 2 CLASS (COASTAL PATROL CRAFT) (PB)

SARAFAND (ex-*Swift*) 307 **BATROUN** (ex-*Safeguard*) 303

Displacement, tons: 31 full load
Dimensions, feet (metres): 63.3 × 16.4 × 4.9 *(19.3 × 5 × 1.5)*
Main machinery: 2 Detroit 12V-71TA diesels; 840 hp *(616 kW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 650 at 20 kt
Complement: 13 (1 officer)
Guns: 3—12.7 mm MGs.
Radars: Surface search: Racal Decca 1216; I-band.

Comment: Two ex-UK Customs Craft first commissioned in 1979 and acquired by Lebanon in late 1993. Fitted with a twin 23 mm gun after transfer but this may have been replaced by a 12.7 mm MG.
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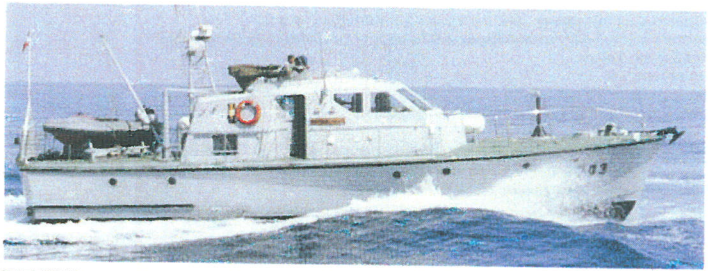

BATROUN *6/1999, Lebanese Navy* / 0081188

5 ATTACKER CLASS (COASTAL PATROL CRAFT) (PB)

TRIPOLI 301
JOUNIEH 302
BYBLOS 304
BEIRUT 305
SIDON 306

Displacement, tons: 38 full load
Dimensions, feet (metres): 65.6 × 17 × 4.9 *(20 × 5.2 × 1.5)*
Main machinery: 2 Detroit 12V-71TA diesels; 840 hp *(616 kW)* sustained; 2 shafts
Speed, knots: 21. **Range, miles:** 650 at 14 kt
Complement: 13 (1 officer)
Guns: 3—12.7 mm MGs.
Radars: Surface search: Racal Decca 1216; I-band.

Comment: Built at Cowes and Southampton, and commissioned in March 1983. First three transferred from UK 17 July 1992 after serving as patrol craft for the British base in Cyprus. The other two were acquired in 1993. Former names, *Attacker, Chaser, Fencer, Hunter* and *Striker*. All are operational.
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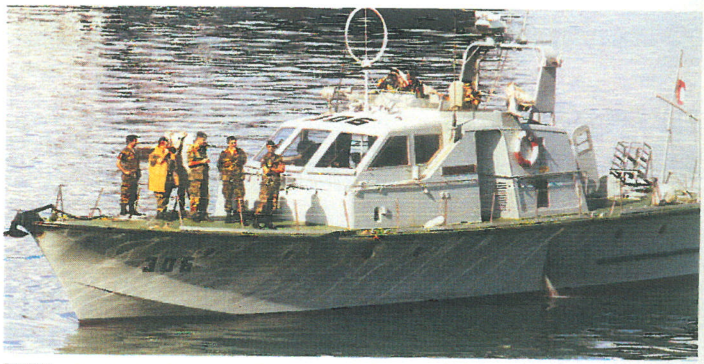

SIDON *2/2000* / 0097756

25 INSHORE PATROL CRAFT (PBR)

401 403-418 420-427

Displacement, tons: 6 full load
Dimensions, feet (metres): 26.9 × 8.2 × 2 *(8.2 × 2.5 × 0.6)*
Main machinery: 2 Sabre 212 diesels; 212 hp(m) *(156 kW)*; 2 waterjets
Speed, knots: 22. **Range, miles:** 154 at 22 kt
Complement: 4
Guns: 3—5.56 mm MGs.

Comment: M-boot type used by the US Army on German rivers and 27 were transferred in January 1994. Called Combat Support Boats, there are 20 operational and five laid up. Two were decommissioned in 2002.
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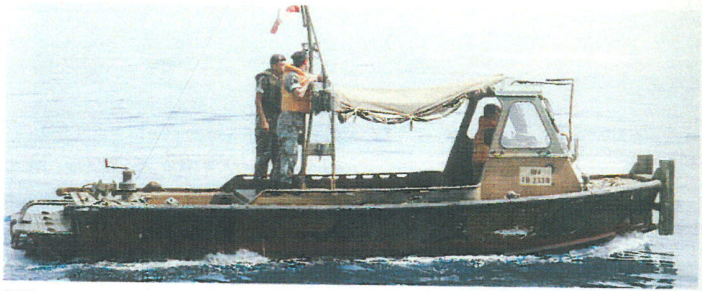

CSB *6/1998, Lebanese Navy* / 0052571

Libya

Country Overview

The Socialist People's Libyan Arab Jamahiriyah is situated in north Africa. With an area of 679,362 square miles, it has a 956 n mile coastline with the Mediterranean Sea and is bordered to the east by Egypt, to the south by Sudan, Chad and Niger and to the west by Algeria and Tunisia. The capital and largest city is Tripoli which, with Benghazi, is a principal port. Territorial seas (12 n miles) are claimed. An EEZ has not been claimed. The status of the Gulf of Sirte, which Libya claims as internal waters, is disputed by numerous states including USA, United Kingdom, France, Italy and Greece.

Headquarters Appointments

Chief of Staff Navy:
Rear Admiral Muhammad al Shaybani Ahmad al Suwaihili
Deputy Chief of Staff Navy:
Captain al-Din Mufti

Personnel

(a) 2004: 8,000 officers and ratings, including Coast Guard
(b) Voluntary service

Bases

Naval HQ at Al Khums.
Operating Ports at Tripoli, Darnah (Derna) and Benghazi.
Naval bases at Al Khums and Tobruq.
Submarine base at Ras Hilal.
Naval air station at Al Girdabiyah.
Naval infantry battalion at Sidi Bilal.

Coast Defence

Batteries of truck-mounted SS-C-3 Styx missiles.

General

Specialist teams in unconventional warfare are a threat and almost any Libyan vessel can lay mines, but overall operational effectiveness is very low, not least because of poor maintenance and stores support. Sanctions imposed by the UN in April 1992 were reported as 'destroying' the Fleet, but the situation improved in late 1995 with mostly Ukrainian technicians being hired on maintenance contracts. More improvements were reported in 1998. Weapon systems are rarely exercised.

SUBMARINES

2 FOXTROT CLASS (PROJECT 641) (SS)

AL KHYBER 315 **AL HUNAIN** 316

Displacement, tons: 1,950 surfaced; 2,475 dived
Dimensions, feet (metres): 299.5 × 24.6 × 19.7 *(91.3 × 7.5 × 6)*
Main machinery: Diesel-electric; 3 Type 37-D diesels (1 × 2,700 and 2 × 1,350); 6,000 hp(m) *(4.4 MW)*; 3 motors; 5,400 hp (m) *(3.97 MW)*; 3 shafts; 1 auxiliary motor; 140 hp(m) *(103 kW)*
Speed, knots: 16 surfaced; 15 dived
Range, miles: 20,000 at 8 kt surfaced; 380 at 2 kt dived
Complement: 75 (8 officers)

Torpedoes: 10—21 in *(533 mm)* (6 bow, 4 stern) tubes. SAET-60; passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 400 kg, and SET-65E; active/passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 205 kg or Type 53-56. Total of 22 torpedoes.
Mines: 44 in place of torpedoes.
Countermeasures: ESM: Stop Light; radar warning.
Radars: Surface search: Snoop Tray; I-band.
Sonars: Herkules; hull-mounted; active; medium frequency. Feniks; hull-mounted; passive.

Programmes: Six of the class originally transferred from USSR; this last one in April 1982.
Operational: Libyan crews trained in the USSR and much of the maintenance was done by Russian personnel. No routine patrols have been seen since 1984 although both boats have been reported to conduct surface patrols. One submarine was reported to be in dry dock at Tripoli during 2003 but, in view of the poor material state of these submarines, a return to full operational capability remains unlikely.

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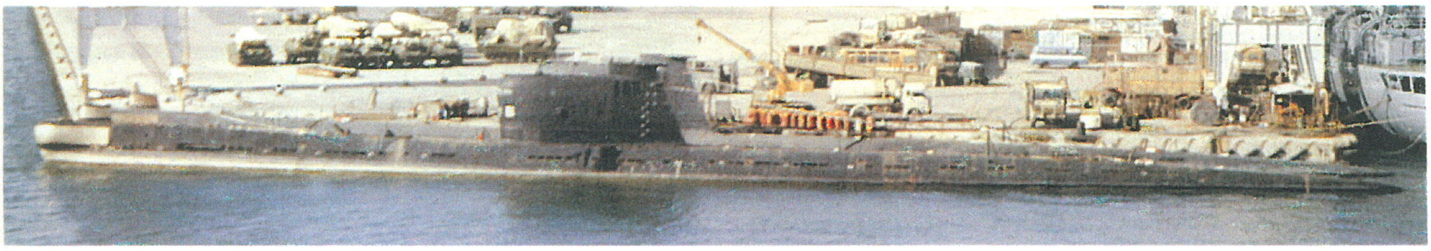


FOXTROT *6/1992, van Ginderen Collection* / 0081190

FRIGATES

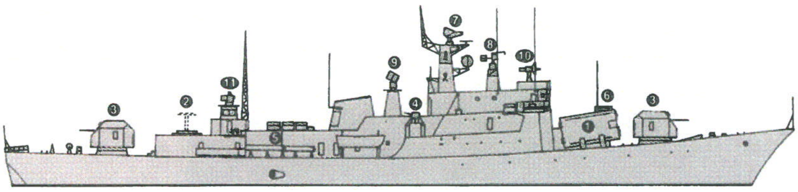
Notes: The *Dat Assawari* F 211 is a training hulk alongside in Tripoli.

2 KONI (PROJECT 1159) CLASS (FFGM)

AL HANI F 212 **AL QIRDABIYAH** F 213

Displacement, tons: 1,440 standard; 1,900 full load
Dimensions, feet (metres): 316.3 × 41.3 × 11.5 *(96.4 × 12.6 × 3.5)*
Main machinery: CODAG; 1 SGW, Nikolayev, M8B gas turbine (centre shaft); 18,000 hp(m) *(13.25 MW)* sustained; 2 Russki B-68 diesels; 15,820 hp(m) *(11.63 MW)* sustained; 3 shafts
Speed, knots: 27 on gas; 22 on diesel.
Range, miles: 1,800 at 14 kt
Complement: 120

Missiles: SSM: 4 Soviet SS-N-2C Styx (2 twin) launchers ❶; active radar/IR homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg; sea-skimmer at end of run.
SAM: SA-N-4 Gecko twin launcher ❷; semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; altitude 9.1-3,048 m *(29.5-10,000 ft)*; warhead 50 kg; 20 missiles.
Guns: 4 USSR 3 in *(76 mm)*/60 (2 twin) ❸; 60 rds/min to 15 km *(8 n miles)* anti-surface; 14 km *(7.6 n miles)* anti-aircraft; weight of shell 6.8 kg.
4 USSR 30 mm/65 (2 twin) automatic ❹; 500 rds/min to 2 km *(1.1 n miles)*; weight of shell 0.54 kg.
Torpedoes: 4—406 mm (2 twin) tubes amidships ❺. USET-95; active/passive homing to 10 km *(5.5 n miles)* at 30 kt; warhead 100 kg.
A/S mortars: 1 RBU 6000 12-tubed trainable launcher ❻; automatic loading; range 6,000 m; warhead 31 kg.
Depth charges: 2 racks.



AL HANI *(Scale 1 : 900), Ian Sturton*

Mines: Capacity for 20.
Countermeasures: Decoys: 2—16-barrelled chaff launchers. Towed torpedo decoys.
ESM: 2 Watch Dog; radar warning.
Radars: Air search: Strut Curve ❼; F-band; range 110 km *(60 n miles)* for 2 m² target.
Surface search: Plank Shave ❽; E/F-band.
Navigation: Don 2; I-band.
Fire control: Drum Tilt ❾; H/I-band (for 30 mm).
Hawk Screech ❿; I-band; range 27 km *(15 n miles)* (for 76 mm).
Pop Group ⓫; F/H/I-band (for SAM).
IFF: High Pole B. Square Head.
Sonars: Hercules (MG 322); hull-mounted; active search and attack; medium frequency.

Programmes: Type III Konis built at Zelenodolsk and transferred from the Black Sea. 212 commissioned 28 June 1986 and 213 on 24 October 1987.
Structure: SSMs mounted either side of small deckhouse on forecastle behind gun. A deckhouse amidships contains air conditioning machinery. Changes to the standard Koni include SSM, four torpedo tubes, only one RBU 6000 and Plank Shave surface search and target indication radar. Camouflage paint applied in 1991.
Operational: One of the class fired an exercise Styx missile in September 1999. 213 has been reported active but 212 may be in reserve.

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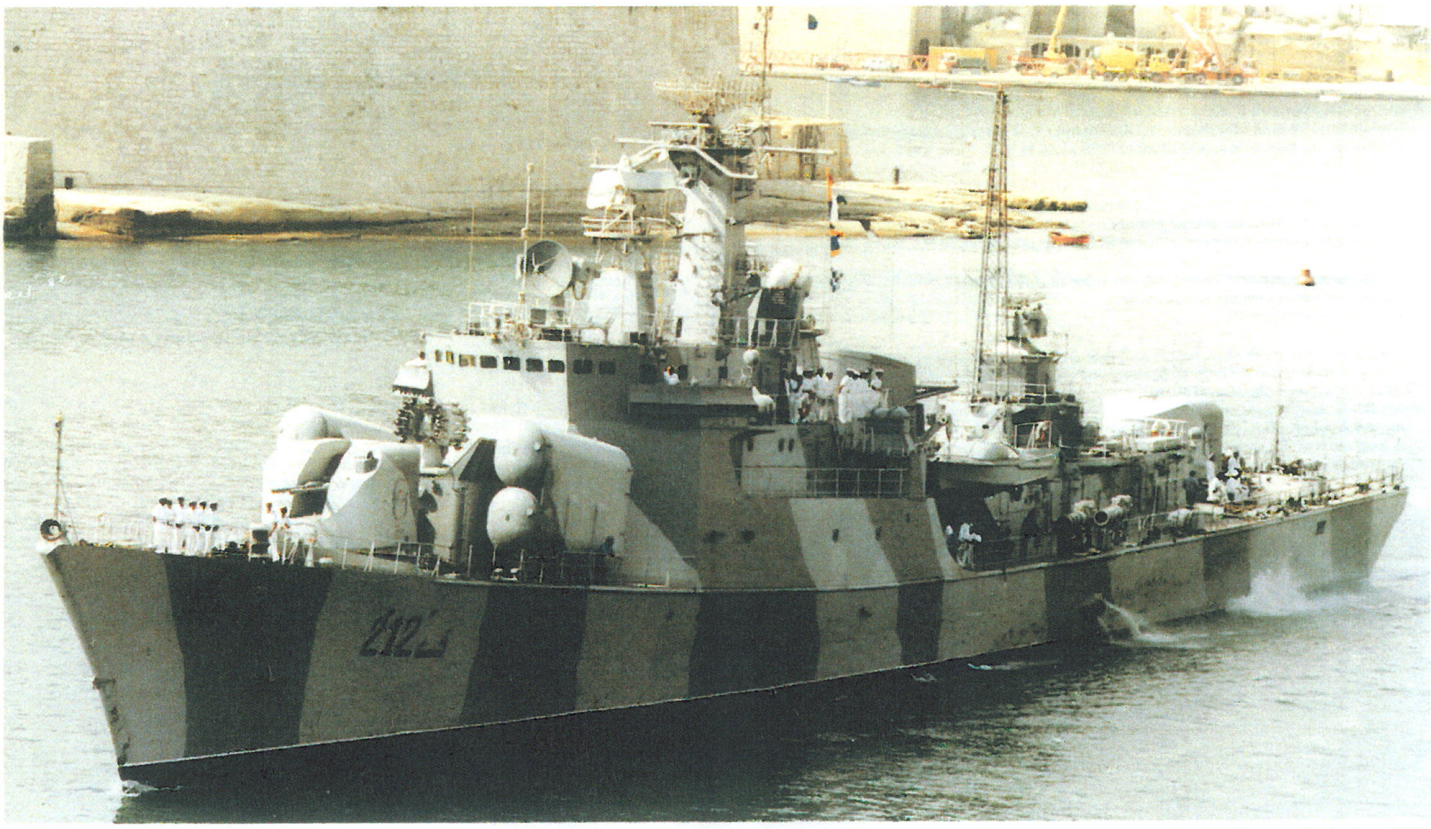

AL HANI *7/1999, van Ginderen Collection* / 0081191

CORVETTES

2 NANUCHKA II (PROJECT 1234) CLASS (MISSILE CORVETTES) (FSGM)

TARIQ IBN ZIYAD (ex-*Ean Mara*) 416
EAN ZARRAH 418

Displacement, tons: 660 full load
Dimensions, feet (metres): 194.5 × 38.7 × 8.5 *(59.3 × 11.8 × 2.6)*
Main machinery: 6 M 504 diesels; 26,112 hp(m) *(19.2 MW)*; 3 shafts
Speed, knots: 33. **Range, miles:** 2,500 at 12 kt; 900 at 31 kt
Complement: 42 (7 officers)

Missiles: SSM: 4 Soviet SS-N-2C Styx launchers; auto-pilot; active radar/IR homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg HE; sea-skimmer at end of run.
SAM: SA-N-4 Gecko twin launcher; semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; altitude 9.1-3,048 m *(29.5-10,000 ft)*; warhead 50 kg HE; 20 missiles.
Guns: 2 USSR 57 mm/80 (twin) automatic; 120 rds/min to 6 km *(3.2 n miles)*; weight of shell 2.8 kg.
Countermeasures: Decoys: 2 chaff 16-barrelled launchers.
ESM: Bell Tap; radar warning.
Radars: Surface search: Square Tie; I-band (Bandstand radome).
Navigation: Don 2; I-band.
Fire control: Muff Cob; G/H-band.
Pop Group; F/H/I-band (for SAM).

Programmes: First transferred from USSR in October 1981; second in February 1983; third in February 1984; fourth in September 1985.
Structure: Camouflage paint applied in 1991 but have been reported as having blue hulls since 1993.
Operational: *Ean Zaquit* (419) sunk on 24 March 1986. *Ean Mara* (416) severely damaged on 25 March 1986 by forces of the US Sixth Fleet; repaired in Leningrad and returned to Libya in early 1991 as the *Tariq Ibn Ziyad*. *Ean Al Gazala* (417) probably in reserve as a source of spares. Reports of refit plans are doubtful.

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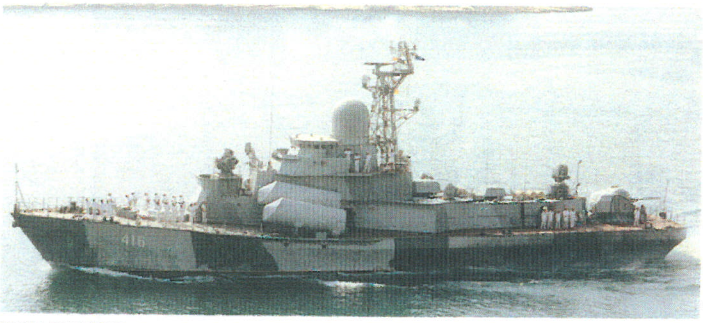

TARIQ IBN ZIYAD *7/1991, van Ginderen Collection* / 0081192

PATROL FORCES

Notes: (1) More than 50 remote-control explosive craft acquired from Cyprus. Based on Q-Boats with Q-26 GRP hulls and speed of about 30 kt. Also reported that 15 31 ft craft delivered by Storebro, and 60 more built locally are similarly adapted. No reports of recent activity.
(2) There is also a Hamelin 37 m patrol craft *Al Ziffa* 206 based at Tripoli.

6 OSA II (PROJECT 205) CLASS (FAST ATTACK CRAFT—MISSILE) (PTFG)

AL ZUARA 513
AL RUHA 515
AL FIKAH 523
AL MATHUR 525
AL BITAR 531
AL SADAD 533

Displacement, tons: 245 full load
Dimensions, feet (metres): 126.6 × 24.9 × 8.8 *(38.6 × 7.6 × 2.7)*
Main machinery: 3 Type M 504 diesels; 10,800 hp(m) *(7.94 MW)* sustained; 3 shafts
Speed, knots: 37. **Range, miles:** 800 at 30 kt; 500 at 35 kt
Complement: 30

Missiles: SSM: 4 Soviet SS-N-2C Styx; active radar or IR homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg HE; sea-skimmer at end of run.
Guns: 4 USSR 30 mm/65 (2 twin) automatic; 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
Radars: Surface search: Square Tie; I-band; range 73 km *(45 n miles)*.
Fire control: Drum tilt; H/I-band.
IFF: 2 Square Head. High Pole.

Programmes: The first craft arrived from USSR in October 1976, four more in August-October 1977, a sixth in July 1978, three in September-October 1979, one in April 1980, one in May 1980 (521) and one in July 1980 (529).
Structure: Some painted with camouflage stripes in 1991 and some were given blue hulls in 1993.
Operational: Although there have been few sightings of these ships at sea, they remain more active than most of the Libyan fleet. One fired an exercise Styx missile in September 1999. Six further craft inactive alongside. Based at Tobruk.

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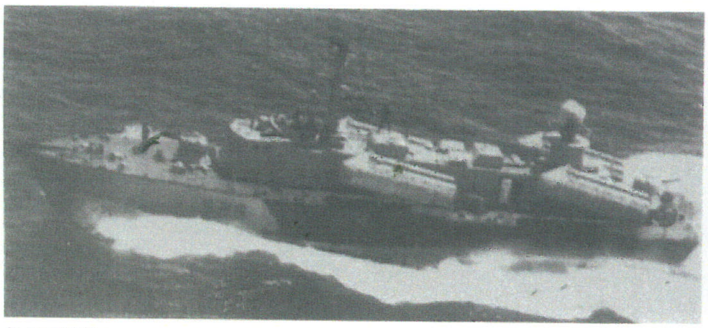

AL MATHUR *1993*

8 COMBATTANTE II G CLASS (FAST ATTACK CRAFT—MISSILE) (PGGF)

SHARABA (ex-*Beir Grassa*) 518
WAHAG (ex-*Beir Gzir*) 522
SHEHAB (ex-*Beir Gtifa*) 524
SHOUAIAI (ex-*Beir Algandula*) 528
SHOULA (ex-*Beir Ktitat*) 532
SHAFAK (ex-*Beir Alkrarim*) 534
RAD (ex-*Beir Alkur*) 538
LAHEEB (ex-*Beir Alkuefat*) 542

Displacement, tons: 311 full load
Dimensions, feet (metres): 160.7 × 23.3 × 6.6 *(49 × 7.1 × 2)*
Main machinery: 4 MTU 20V 538 TB91 diesels; 15,360 hp(m) *(11.29 MW)* sustained; 4 shafts
Speed, knots: 39. **Range, miles:** 1,600 at 15 kt
Complement: 27

Missiles: SSM: 4 OTO Melara/Matra Otomat Mk 2 (TG1); active radar homing to 80 km *(43.2 n miles)* at 0.9 Mach; warhead 210 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.8 n miles)* anti-aircraft; weight of shell 6 kg.
2 Breda 40 mm/70 (twin); 300 or 450 rds/min to 12.5 km *(6.8 n miles)* anti-surface; 4 km *(2.2 n miles)* anti-aircraft; weight of shell 0.96 kg.
Weapons control: CSEE Panda director. Thomson-CSF Vega II system.
Radars: Surface search: Thomson-CSF Triton; G-band; range 33 km *(18 n miles)* for 2 m² target.
Fire control: Thomson-CSF Castor IIB; I-band; range 15 km *(8 n miles)* (associated with Vega fire-control system).

Programmes: Ordered from CMN Cherbourg in May 1977. 518 completed February 1982; 522 3 April 1982; 524 29 May 1982; 528 5 September 1982; 532 29 October 1982; 534 17 December 1982; 542 29 July 1983.
Structure: Steel hull with alloy superstructure.
Operational: *Waheed* (526) sunk on 24 March 1986 and one other severely damaged on 25 March 1986 by forces of the US Sixth Fleet. 524, 534 and 542 visited Malta in late 2001 and continued activity suggests that further craft are at least partly operational.

UPDATED

SHAFAK *1993*

LAND-BASED MARITIME AIRCRAFT

Numbers/Type: 2/5 Aerospatiale SA 321 Frelon/SA 324 Super Frelon.
Operational speed: 134 kt *(248 km/h)*.
Service ceiling: 10,000 ft *(3,050 m)*.
Range: 440 n miles *(815 km)*.
Role/Weapon systems: Obsolescent helicopter; Air Force manned but used for naval support tasks. Most are non-operational due to lack of spares. Sensors: None. Weapons: Fitted for Exocet AM 39.

VERIFIED

Numbers/Type: 5 Aerospatiale SA 316B Alouette III.
Operational speed: 113 kt *(210 km/h)*.
Service ceiling: 10,500 ft *(3,200 m)*.
Range: 290 n miles *(540 km)*.
Role/Weapon systems: Support helicopter. Probably non-operational. Another six are used by the Police. Sensors: None. Weapons: Unarmed.

VERIFIED

AMPHIBIOUS FORCES

Note: Three 'Polochny D' class landing craft (112, 116 and 118) are in reserve and are unlikely to be restored to operational status.

1 PS 700 CLASS (LSTH)

Name	*No*	*Builders*	*Commissioned*
IBN HARISSA	134	CNI de la Mediterranée	10 Mar 1978

Displacement, tons: 2,800 full load
Dimensions, feet (metres): 326.4 × 51.2 × 7.9 *(99.5 × 15.6 × 2.4)*
Main machinery: 2 SEMT-Pielstick 16 PA4 V 185 diesels; 5,344 hp(m) *(3.93 MW)* sustained; 2 shafts; cp props
Speed, knots: 15.4. **Range, miles:** 4,000 at 14 kt
Complement: 35
Military lift: 240 troops; 11 tanks
Guns: 6 Breda 40 mm/70 (3 twin). 1—81 mm mortar.
Weapons control: CSEE Panda director.
Radars: Air search: Thomson-CSF Triton; D-band.
Surface search: Decca 1226; I-band.
Helicopters: 1 Aerospatiale SA 316B Alouette III.

Comment: Laid down 18 April 1977, launched 18 October 1977. Remains active. *Ibn Ouf* 132 is reported to have been transferred to commercial service.

UPDATED

IBN HARISSA *1981*

3 TURKISH Ç 107 CLASS (LCT)

IBN AL IDRISI 130 **IBN MARWAN** 131 **EL KOBAYAT** 132

Displacement, tons: 280 standard; 600 full load
Dimensions, feet (metres): 183.7 × 37.8 × 3.6 *(56 × 11.6 × 1.1)*
Main machinery: 3 GM 6-71TI diesels; 930 hp *(694 kW)* maximum; 3 shafts
Speed, knots: 8.5 loaded; 10 max. **Range, miles:** 600 at 10 kt
Complement: 15
Military lift: 100 troops; 350 tons including 5 tanks
Guns: 2—30 mm (twin).

Comment: First two transferred 7 December 1979 (ex-Turkish *C130* and *C131*) from Turkish fleet. Third of class reported in 1991. Previously reported numbers were much exaggerated. Not reported at sea in recent years and operational status of 132 is doubtful.

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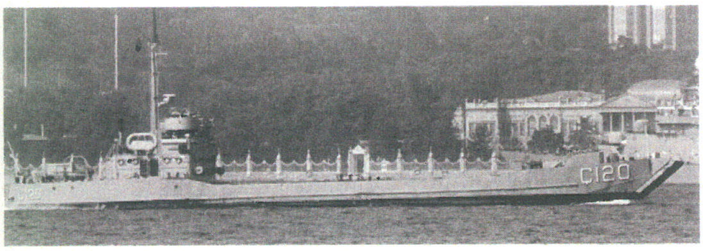

TURKISH LCT (Turkish colours) *10/1991, Harald Carstens*

2 SLINGSBY SAH 2200 (HOVERCRAFT) (UCAC)

Displacement, tons: 5.5 full load
Dimensions, feet (metres): 34.8 × 13.8 *(10.6 × 4.2)*
Main machinery: 1 diesel; 300 hp(m) *(224 kW)*
Speed, knots: 40. **Range, miles:** 400 at 30 kt
Complement: 2
Military lift: 2.2 tons
Guns: 1—12.7 mm MG.
Radars: Surface search: I-band.

Comment: Ordered in September 1999 for delivery to Greece in mid-2000 and subsequently to Libya in 2001.

VERIFIED

TRAINING SHIPS

1 VOSPER CLASS (AX)

Name	*No*	*Builders*	*Commissioned*
TOBRUK	C 411	Vosper Thornycroft	20 Apr 1966

Displacement, tons: 500 full load
Dimensions, feet (metres): 177.3 × 28.5 × 13 *(54 × 8.7 × 4)*
Main machinery: 2 Paxman Ventura diesels; 3,800 hp *(2.83 MW)*; 2 shafts
Speed, knots: 18. **Range, miles:** 2,900 at 14 kt
Complement: 63 (5 officers)
Guns: 1 Vickers 4 in *(102 mm)*/33 Mk 52; 2 Bofors 40 mm/60.
Radars: Surface search: Decca TM 1226C; I-band.

Comment: State apartments are included in the accommodation. The ship is used mostly for training.

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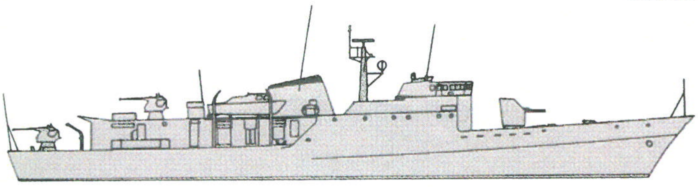


TOBRUK *(Scale 1 : 600), Ian Sturton*

MINE WARFARE FORCES

5 NATYA (PROJECT 266ME) CLASS (OCEAN MINESWEEPERS) (MSO)

AL ISAR (ex-*Ras El Gelais*) 111 **RAS AL FULAIJAH** 117 **RAS AL HANI** 125
AL TIYAR (ex-*Ras Hadad*) 113 **RAS AL MASSAD** 123

Displacement, tons: 804 full load
Dimensions, feet (metres): 200.1 × 33.5 × 10.8 *(61 × 10.2 × 3)*
Main machinery: 2 Type M 504 diesels; 5,000 hp(m) *(3.67 MW)* sustained; 2 shafts; cp props
Speed, knots: 16. **Range, miles:** 3,000 at 12 kt
Complement: 67
Guns: 4 USSR 30 mm/65 (2 twin) automatic; 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
4 USSR 25 mm/60 (2 twin); 270 rds/min to 3 km *(1.6 n miles)*; weight of shell 0.34 kg.
A/S mortars: 2 RBU 1200 5-tubed fixed launchers; elevating; range 1,200 m; warhead 34 kg.
Mines: 10.
Countermeasures: MCM: 1 GKT-2 contact sweep; 1 AT-2 acoustic sweep; 1 TEM-3 magnetic sweep.
Radars: Surface search: Don 2; I-band.
Fire control: Drum Tilt; H/I-band.
IFF: 2 Square Head. 1 High Pole B.
Sonars: Hull-mounted; active search; high frequency.

Comment: Transferred from USSR between 1981 and 1986. At least one of the class painted in green striped camouflage in 1991. Others may have blue hulls. Capable of magnetic, acoustic and mechanical sweeping. Mostly used for coastal patrols and never observed minesweeping. *Ras Al Massad* has been used for training cruises. Further four inactive.

VERIFIED

NATYA *2/1988*

AUXILIARIES

Note: *Zeltin* 711 is used as an alongside tender for patrol forces but is no longer capable of going to sea.

10 TRANSPORTS (AG/ML)

GARYOUNIS (ex-*Mashu*) **EL TEMSAH** **DERNA** **GHAT**
GARNATA (ex-*Monte Granada*) **TOLETELA** (ex-*Monte Toledo*) **RAHMA** (ex-*Krol*) **LA GRAZIETTA**
HANNA **GHARDIA**

Measurement, tons: 2,412 gross
Dimensions, feet (metres): 546.3 × 80.1 × 21.3 *(166.5 × 24.4 × 6.5)*
Main machinery: 2 SEMT-Pielstick diesels; 20,800 hp(m) *(15.29 MW)*; 2 shafts; bow thruster
Speed, knots: 20

Comment: Details are for *Garyounis*, a converted ro-ro passenger/car ferry used as a training vessel in 1989. In addition the 117 m *El Temsah* was refitted and another four of these vessels are of Ro-Ro design. All are in regular civilian service and *Garyounis* is also used by the military. All have minelaying potential.

VERIFIED

TOLETELA *2000, Sky Photos* / 0130092

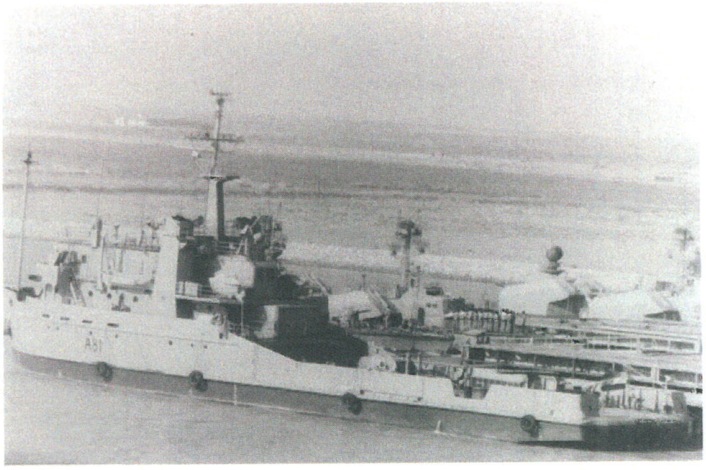
1 SPASILAC CLASS (SALVAGE SHIP) (ARS)

AL MUNJED (ex-*Zlatica*) 722

Displacement, tons: 1,590 full load
Dimensions, feet (metres): 182 × 39.4 × 14.1 *(55.5 × 12 × 4.3)*
Main machinery: 2 diesels; 4,340 hp(m) *(3.19 MW)*; 2 shafts; cp props; bow thruster
Speed, knots: 13. **Range, miles:** 4,000 at 12 kt
Complement: 50
Guns: 4—12.7 mm MGs. Can also be fitted with 8—20 mm (2 quad) and 2—20 mm.
Radars: Surface search: Racal Decca; I-band.

Comment: Transferred from Yugoslavia in 1982. Fitted for firefighting, towing and submarine rescue-carries recompression chamber. Built at Tito SY, Belgrade. Used as the lead vessel for the 1998 training cruise, and is still operational.

VERIFIED



SPASILAC (Iraqi colours) *1988, Peter Jones*

1 YELVA (PROJECT 535M) CLASS (DIVING TENDER) (YDT)

AL MANOUD VM 917

Displacement, tons: 300 full load
Dimensions, feet (metres): 134.2 × 26.2 × 6.6 *(40.9 × 8 × 2)*
Main machinery: 2 Type 3-D-12A diesels; 630 hp(m) *(463 kW)* sustained; 2 shafts
Speed, knots: 12.5
Complement: 30
Radars: Navigation: Spin trough; I-band.
IFF: High Pole.

Comment: Built in early 1970s. Transferred from USSR December 1977. Carries two 1.5 ton cranes and has a portable decompression chamber. Based at Tripoli and does not go to sea.

VERIFIED

2 FLOATING DOCKS

Comment: One of 5,000 tons capacity at Tripoli. One of 3,200 tons capacity acquired in April 1985.

VERIFIED

TUGS

7 COASTAL TUGS (YTB)

RAS EL HELAL A 31	**AL KERIAT**	**A 33-35**
AL AHWEIRIF A 32	**AL TABKAH**	

Comment: First four of 34.8 m built in Portugal in 1976-78. Last three of 26.6 m built in the Netherlands in 1979-80. All are in service.

VERIFIED

Lithuania
KARINËS JÛRØ PAJËGOS

Country Overview

The Republic of Lithuania regained independence in 1991 after 51 years as a Soviet republic. Situated in northeastern Europe, the country has an area of 25,175 square miles and borders to the north with Latvia, to the east and south with Belarus, to the southwest with Poland and the Russian exclave of Kaliningrad. It has a 58 n mile coastline with the Baltic Sea. Vilnius is the capital and largest city while Klaipeda is the principal port. Territorial seas (12 n miles) are claimed but while it has claimed a 200 n mile Exclusive Economic Zone (EEZ), its limits have not been fully defined by boundary agreements.

Headquarters Appointments

Commander of the Navy:
Captain Kęstutis Macijauskas
Chief of Staff:
Commander Oleg Marinic

Personnel

2004: 670

Bases

Klaipeda

State Border Police (Pakrančių Apsauga)

Coast Guard Force formed in late 1992. Name changed in 1996 to Border Police. Vessels have one thick and one thin diagonal yellow stripe on the hull.

DELETIONS

2001 *SK 23*

FRIGATES

2 GRISHA III (ALBATROS) CLASS (PROJECT 1124M) (FFLM)

Name	*No*	*Builders*	*Commissioned*	*Recommissioned*
ŽEMAITIS	F 11 (ex-MPK 108)	Zelenodolsk Shipyard	1 Oct 1981	6 Nov 1992
AUKŠTAITIS	F 12 (ex-MPK 44)	Kiev Shipyard	15 Aug 1980	6 Nov 1992

Displacement, tons: 950 standard; 1,200 full load
Dimensions, feet (metres): 233.6 × 32.2 × 12.1 *(71.2 × 9.8 × 3.7)*
Main machinery: CODAG; 1 gas-turbine; 15,000 hp(m) *(11 MW)*; 2 diesels; 16,000 hp(m) *(11.8 MW)*; 3 shafts
Speed, knots: 30
Range, miles: 2,500 at 14 kt diesels; 950 at 27 kt
Complement: 48 (5 officers)

Missiles: SAM: SA-N-4 Gecko twin launcher ❶; semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; warhead 50 kg; altitude 9.1-3,048 m *(30-10,000 ft)*; 20 missiles.
Guns: 2—57 mm/80 (twin) ❷; 120 rds/min to 6 km *(3.3 n miles)*; weight of shell 2.8 kg.
1—30 mm/65 ❸; 6 barrels; 3,000 rds/min combined to 2 km.
A/S mortars: 2 RBU 6000 12-tubed trainable ❹; range 6,000 m; warhead 31 kg.
Depth charges: 2 racks (12).
Mines: Capacity for 18 in lieu of depth charges.
Countermeasures: Decoys: 1 PK-16 (F 11) chaff launcher.
ESM: 2 Watch Dog.
Radars: Air/surface search: Strut Curve ❺; F-band.
Navigation: Terma Scanter; I-band.
Fire control: Pop Group ❻; F/H/I-band (for SA-N-4). Bass Tilt ❼; H/I-band (for guns).
Sonars: Bull Nose; hull-mounted; active search and attack; high/medium frequency.

Modernisation: Torpedo tubes removed from F 12 in 1996 and from F 11 in 1997.

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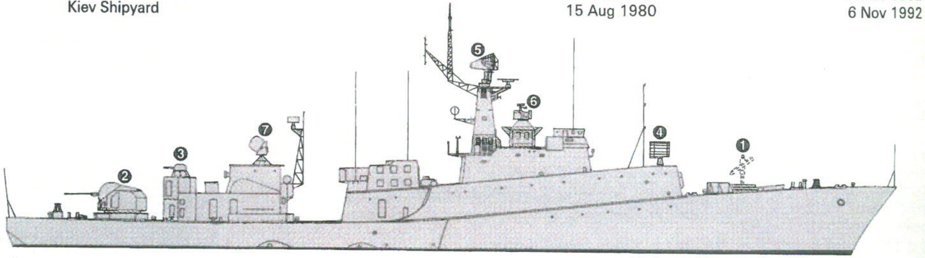
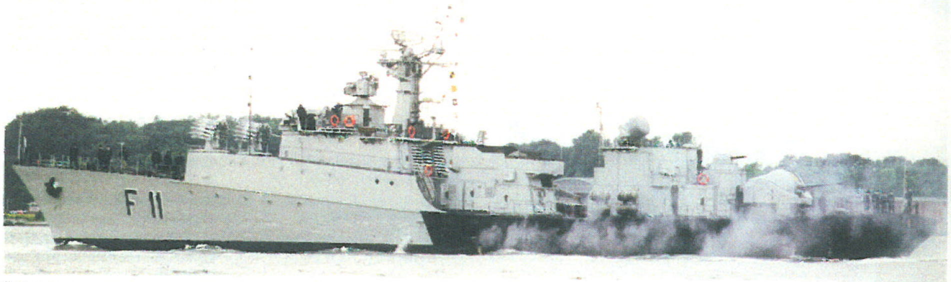


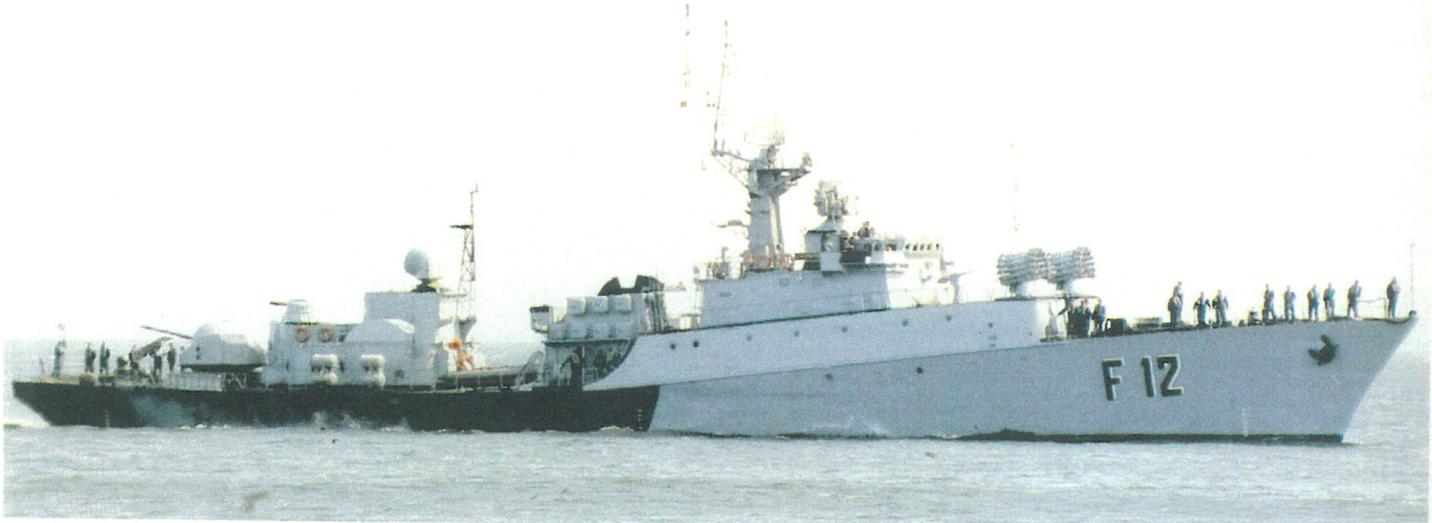
AUKŠTAITIS

(Scale 1 : 600), Ian Sturton



ŽEMAITIS

6/2002, Harald Carstens / 0524996



AUKŠTAITIS

6/2003, J Ciślak* / 0568320

PATROL FORCES

3 STORM CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
DZŪKAS (ex-*Kjekk*)	P 31 (ex-P 965)	Bergens Mek Verksteder	1966
SELIS (ex-*Skudd*)	P 32 (ex-P 967)	Bergens Mek Verksteder	1966
SKALVIS (ex-*Steil*)	P 33 (ex-P 969)	Westermoen, Mandal	1967

Displacement, tons: 138 full load
Dimensions, feet (metres): 120 × 20.3 × 5.9 *(36.5 × 6.2 × 1.8)*
Main machinery: 2 MTU MB 16V 538 TB90 diesels; 6,000 hp(m) *(4.41 MW)* sustained; 2 shafts
Speed, knots: 32. **Range, miles:** 550 at 32 kt
Complement: 20 (3 officers)
Guns: 1 Bofors 3 in *(76 mm)*/50; 30° elevation; 30 rds/min to 13 km *(7 n miles)*. Surface fire only; weight of shell 5.9 kg.
1 Bofors 40 mm/70; 90° elevation; 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 0.96 kg.
Weapons control: TVT 300 optronic tracker.
Radars: Navigation: Furuno; I-band.

Comment: P 31 (ex-*Glimt*) disarmed and acquired from Norway on 12 December 1994 as a gun patrol craft. Re-armed in 1998. P 32 and P 33 transferred from Norway in June 2001. A further craft (ex-*Kjekk*) transferred in October 2001 and, following refit, commissioned as P 31 in August 2002. Ex-*Glimt* is laid up at Klaipeda. Others of the class given to Latvia and Estonia.
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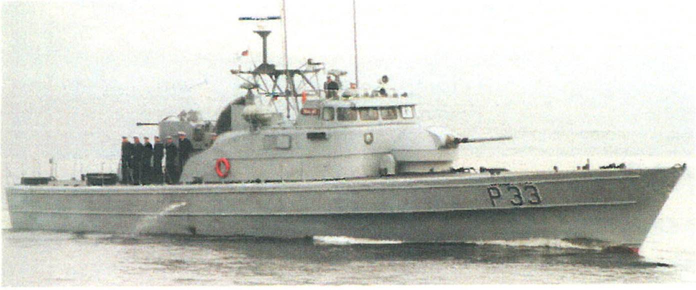

SKALVIS *4/2002, Guy Toremans* / 0524995

1 COASTAL PATROL CRAFT (PB/YFS)

HK 21 (ex-*Vilnele*)

Displacement, tons: 88 full load
Dimensions, feet (metres): 75.8 × 19 × 5.9 *(23.1 × 5.8 × 1.8)*
Main machinery: 2 diesels; 600 hp(m) *(441 kW)*; 2 shafts
Speed, knots: 12
Complement: 7 (1 officer)

Comment: Acquired in 1992. Former pilot boat and tender to *Vetra*. Used as a hydrographic vessel.
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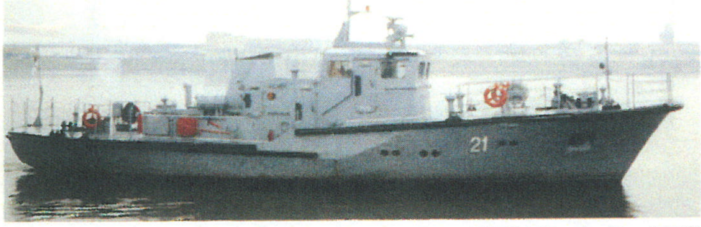

HK 21 *6/1994, Lithuanian Navy* / 0081198

MINE WARFARE FORCES

2 LINDAU (TYPE 331) CLASS (MINEHUNTER) (MHC)

Name	*No*	*Builders*	*Commissioned*
SŪDUVIS (ex-*Koblenz*)	M 52 (ex-M 1071)	Burmester, Bremen	8 July 1958
KURŠIS (ex-*Marburg*)	M 51 (ex-M 1080)	Burmester, Bremen	11 June 1959

Displacement, tons: 463 full load
Dimensions, feet (metres): 154.5 × 27.2 × 9.8 (9.2 Troika) *(47.1 × 8.3 × 3) (2.8)*
Main machinery: 2 MTU MD diesels; 4,000 hp(m) *(2.94 MW)*; 2 shafts
Speed, knots: 16.5. **Range, miles:** 850 at 16.5 kt
Complement: 43 (5 officers)
Guns: 1 Bofors 40 mm/70.
Radars: Navigation: Raytheon Mariner Pathfinder; I-band.
Sonars: Plessey 193 m; minehunting; high frequency (100/300 kHz).
EdgeTech DF-1000 sidescan (M 51); high frequency (100/400 kHz).

Comment: M 52 acquired from Germany in June 1999 and recommissioned 2 December 1999. M 51 transferred in November 2000. Converted to minehunters in 1978. Hulls of wooden construction. Full minehunting equipment including PAP 104 ROVs transferred with the vessels.
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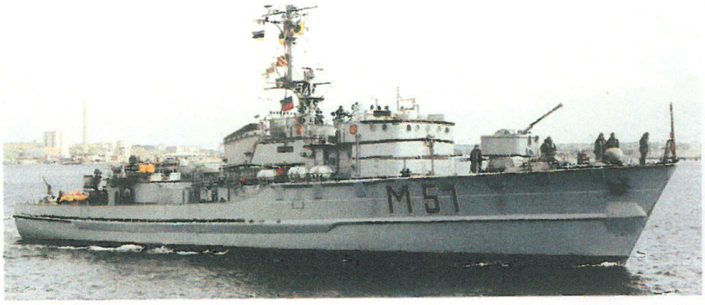

KURŠIS *6/2003*, Frank Findler* / 0561509

AUXILIARIES

Notes: *Victoria* 245 is an ex-Swedish Coast Guard vessel now owned by the Fishery Inspection Service.

1 VALERIAN URYVAYEV CLASS (AGOR/AX)

VETRA (ex-*Rudolf Samoylovich*) A 41

Displacement, tons: 1,050 full load
Dimensions, feet (metres): 180.1 × 31.2 × 13.1 *(54.9 × 9.5 × 4)*
Main machinery: 1 Deutz diesel; 850 hp(m) *(625 kW)*; 1 shaft
Speed, knots: 12
Complement: 34 (8 officers)
Guns: 2—12.7 mm MGs.
Radars: Navigation: Racal Decca RM 1290; I-band.

Comment: Built at Khabarovsk in early 1980s. Transferred from the Russian Navy in 1992 where she was used as a civilian oceanographic research vessel. Now used as the Flag ship for the Baltic States MCMV unit which includes *Olev* and *Kalev* (from Estonia) and *Viesturs* and *Imanta* (from Latvia). A second of class *Vejas* works for the Ministry of Environment.
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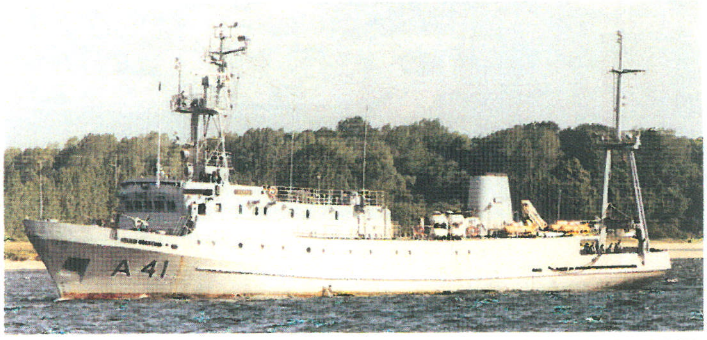

VETRA *6/2003*, Harald Carstens* / 0561508

1 HARBOUR TUG (YTL)

H 22 (ex-A 330)

Displacement, tons: 35
Dimensions, feet (metres): 48 × 14.8 × 8.2 *(14.65 × 4.5 × 2.5)*
Main machinery: 1 Scania-Vabis DSI 11R82A diesel; 230 hp *(171 kW)*
Speed, knots: 9
Complement: 4
Radars: Navigation: Racal Decca; I-band.

Comment: Ex-Swedish *Atlas* transferred in 2000.
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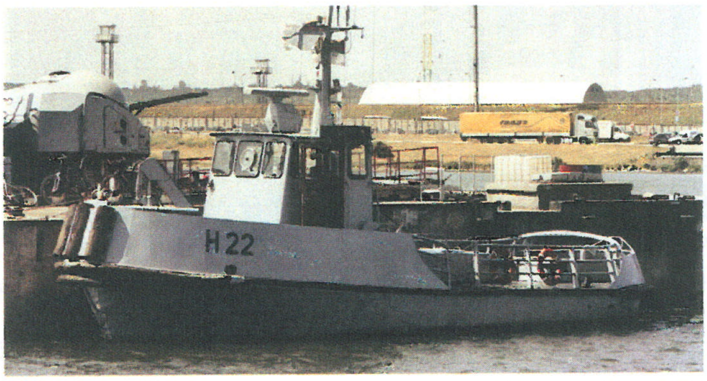

H 22 *6/2003*, Hartmut Ehlers* / 0561507

1 KUTTER CLASS (PB)

LOKYS (ex-*Apollo*) S 07

Displacement, tons: 35 full load
Dimensions, feet (metres): 60.4 × 17.1 × 7.5 *(18.4 × 5.2 × 2.3)*
Main machinery: 1 diesel; 165 hp(m) *(121 kW)*; 1 shaft
Speed, knots: 9
Complement: 7
Guns: 2—7.62 mm MGs.
Radars: Surface search: Raytheon RM 1290S; I-band.

Comment: Built in the 1930s and served with the Danish Naval Home Guard. Transferred in July 1997. Manned by naval volunteer organisation.
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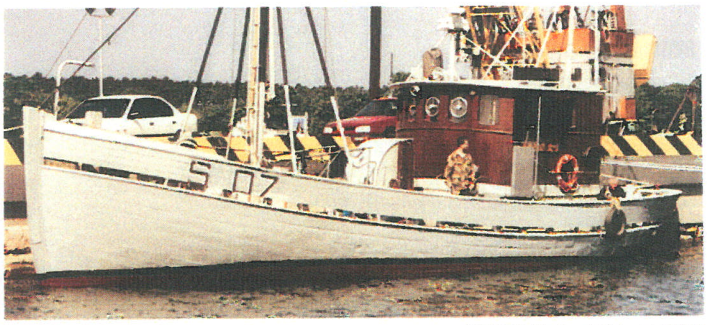

LOKYS *6/2003*, Hartmut Ehlers* / 0561505

STATE BORDER SECURITY SERVICE

1 LOKKI CLASS (PB)

KIHU 102 (ex-003)

Displacement, tons: 76 full load
Dimensions, feet (metres): 87.9 × 17 × 6.2 *(26.8 × 5.2 × 1.9)*
Main machinery: 2 MTU 8V 396 TB84 diesels; 2,120 hp(m) *(1.58 MW)* sustained; 2 shafts
Speed, knots: 25
Complement: 6
Radars: Navigation: Furuno FR 2010 and FCR 1411; I-band.

Comment: Armament and sonar removed on transfer. Donated by Finland in 1998.

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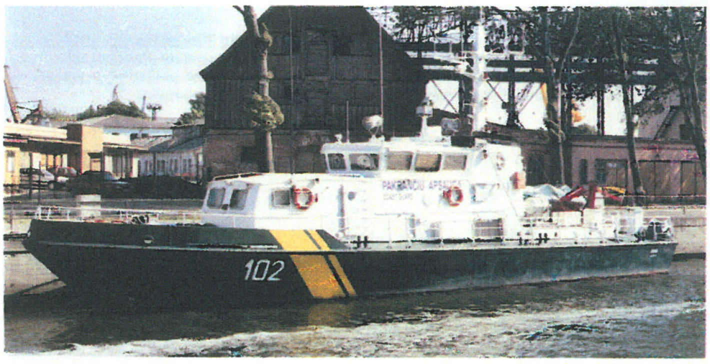

KIHU *6/2003*, Hartmut Ehlers* / 0561506

1 KBV 041 CLASS (PB)

MADELEINE 042 (ex-KBV 041)

Displacement, tons: 69 full load
Dimensions, feet (metres): 73.5 × 17.72 × 5.6 *(22.4 × 5.4 × 1.7)*
Main machinery: 2 diesels; 450 hp(m) *(331 kW)*; 2 shafts
Speed, knots: 10
Complement: 4
Radars: Navigation: Furuno FRS 1000C and FR 1510; I-band.

Comment: Class B sea truck transferred from the Swedish Coast Guard in April 1995. Used for pollution control in Swedish service but now used as patrol craft.

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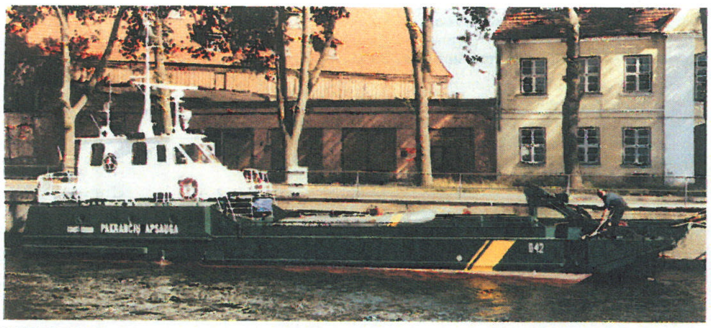

MADELEINE *6/2003*, Hartmut Ehlers* / 0561504

1 KBV 101 CLASS (PB)

LILIAN 101 (ex-*KBV 101*)

Displacement, tons: 69 full load
Dimensions, feet (metres): 82 × 16.4 × 6.5 *(25 × 5 × 2)*
Main machinery: 2 Cummins KTA38-M diesels; 2,120 hp(m) *(1.56 MW)*; 2 shafts
Speed, knots: 18. **Range, miles:** 1,000 at 15 kt
Complement: 5
Radars: Navigation: Furuno FR 2010 and FCR 1411; I-band.

Comment: Built in Sweden in 1969. Transferred from Swedish Coast Guard on 24 June 1996. Used in Swedish service as a salvage diving vessel and had a high frequency active hull-mounted sonar.

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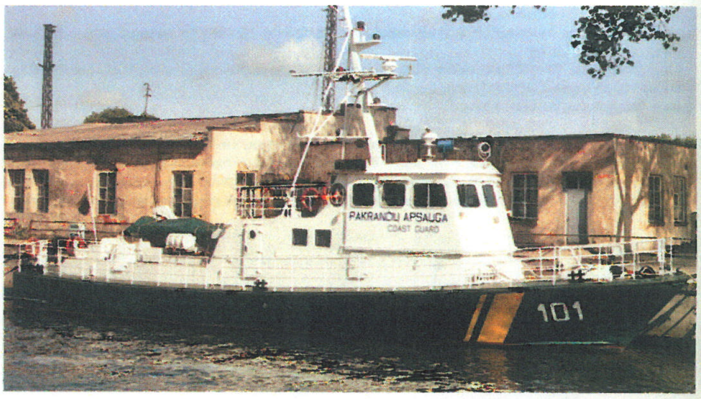

LILIAN *6/2003*, Hartmut Ehlers* / 0561503

1 CHRISTINA (GRIFFON 2000 TD) CLASS HOVERCRAFT (UCAC)

CHRISTINA

Displacement, tons: 5 full load
Dimensions, feet (metres): 41.35 × 20 *(12.6 × 6.1)*
Main machinery: 1 Deutz BF8L diesel; 355 hp *(265 kW)*
Speed, knots: 35
Complement: 3
Radars: Furuno 1000C; I-band.

Comment: Built by Griffon UK and delivered in 2000. Similar to crafts supplied to Estonia and Finland.

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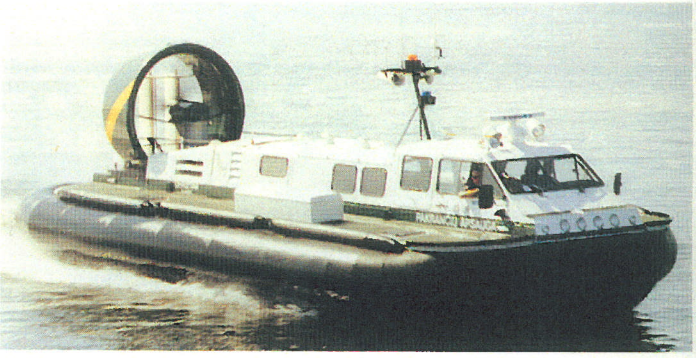

CHRISTINA *6/2001, Lithuanian Navy* / 0114364

Madagascar

MALAGASY REPUBLIC MARINE

Country Overview

Formerly a French Protectorate, the Malagasy Republic became self-governing in 1958 and fully independent in 1960. It adopted the name Democratic Republic of Madagascar in 1975. Situated in the Indian Ocean and separated from the southeastern coast of Africa by the Mozambique Channel, it comprises Madagascar Island, the fourth largest island in the world, and several small islands. The country's total area is 226,658 square miles and it has a coastline of 2,608 n miles. Antananarivo is the capital while Toamasina is the principal commercial port. There are further ports at Antsiranana, Mahajanga and Toliara. Territorial seas (12 n miles) are claimed. An Exclusive Economic Zone (EEZ) has been claimed but boundaries have not been agreed.

Headquarters Appointments

Head of Navy:
Captain Joshue Andriamarantena Ratsimisetra

Personnel

2004: 430 officers and men (including Marine Company of 120 men)

Bases

Antsiranana (main), Toamasina, Mahajanga, Toliary, Nosy-Be, Tolagnaro, Manakara.

AMPHIBIOUS FORCES

1 EDIC CLASS (LCT)

AINA VAO VAO (ex-*L9082*)

Displacement, tons: 250 standard; 670 full load
Dimensions, feet (metres): 193.5 × 39.2 × 4.5 *(59 × 12 × 1.3)*
Main machinery: 2 SACM MGO diesels; 1,000 hp(m) *(753 kW)*; 2 shafts
Speed, knots: 8. **Range, miles:** 1,800 at 8 kt
Complement: 32 (3 officers)
Military lift: 250 tons
Guns: 2 Giat 20 mm.

Comment: Built in 1964 by Chantier Naval Franco-Belge. Transferred from France 28 September 1985 having been paid off by the French Navy in 1981. Repaired by the French Navy in 1996 and now back in service.

UPDATED

AINA VAO VAO *6/1999, Madagascar Navy* / 0081202

PATROL FORCES

Notes: It was planned to order coastal patrol craft from South Korea in 2001 but this has not been confirmed.

AUXILIARIES

Notes: (1) Two 'Aigrette' class harbour tugs *Engoulevent* and *Martin-Pêcheur* were acquired from France in May 1996.
(2) There is also a 400 ton coastal tug *Trozona*.

1 CHAMOIS CLASS (SUPPLY TENDER) (AG)

MATSILO (ex-*Chamois*) (ex-A 767)

Displacement, tons: 495 full load
Dimensions, feet (metres): 136.1 × 24.6 × 10.5 *(41.5 × 7.5 × 3.2)*
Main machinery: 2 SACM AGO 175 V16 diesels; 2,700 hp(m) *(1.98 MW)*; 2 shafts; cp props; bow thruster
Speed, knots: 14. **Range, miles:** 6,000 at 12 kt
Complement: 13 plus 7 spare
Cargo capacity: 100 tons cargo; 165 tons of fuel or water
Radars: Navigation: Racal Decca 1226; I-band.

Comment: Built by La Perrière, Lorient and commissioned in the French Navy 24 September 1976. Paid off in 1995 and transferred from France in May 1996. Can act as a tug (bollard pull 25 tons) or for SAR and supply tasks but is mostly used as a patrol craft. There are two 30 ton winches and up to 100 tons of stores can be carried on deck.

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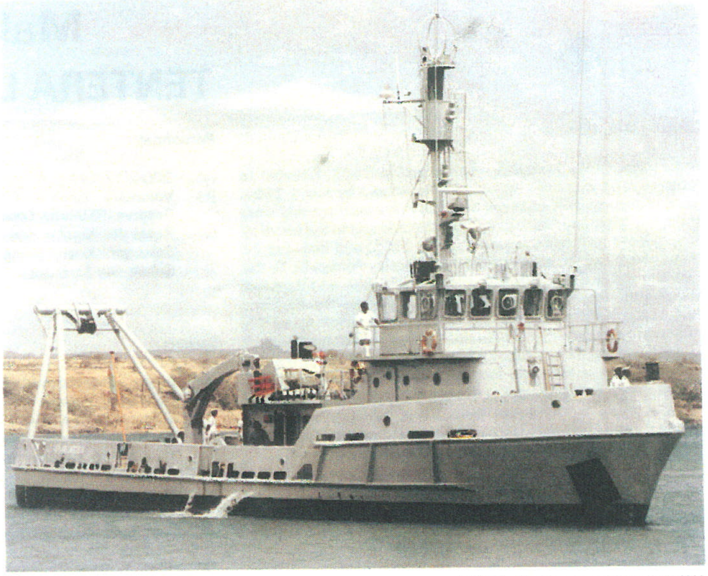
MATSILO *6/1999, Madagascar Navy* / 0081203

Malawi

Country Overview

Formerly the British Protectorate of Nyasaland, Malawi gained independence in 1964. A landlocked country situated in east Central Africa, it is bordered to the north by Tanzania, to the west by Zambia and to the south and east by Mozambique. The country's total area is 45,747 square miles, nearly a quarter of which is water. The principal lake is Lake Malawi (formerly Lake Nyasa), with which there is a shoreline of some 475 n miles. The largest city is the former capital Blantyre and the capital, since 1975, is Lilongwe. The naval base at Monkey Bay is situated on a peninsula at the south of the lake.

Headquarters Appointments

Commander of the Malawi Army Marine Unit:
Lieutenant Colonel G A Ziyabu

Bases

Monkey Bay, Lake Malawi

Personnel

2004: 225

PATROL FORCES

Notes: One survey craft built in France in 1988 is operated on Lake Malawi by Department of Surveys.

1 ANTARES CLASS (PB)

KASUNGU (ex-*Chikala*) P 703

Displacement, tons: 41 full load
Dimensions, feet (metres): 68.9 × 16.1 × 4.9 *(21 × 4.9 × 1.5)*
Main machinery: 2 Poyaud 520 V12 M2 diesels; 1,300 hp(m) *(956 kW)*; 2 shafts
Speed, knots: 22. **Range, miles:** 650 at 15 kt
Complement: 16
Guns: 1 MG 21 20 mm. 2—7.62 mm MGs.
Radars: Surface search: Decca; I-band.

Comment: Built in prefabricated sections by SFCN Villeneuve-la-Garenne and shipped to Malawi for assembly on 17 December 1984. Commissioned May 1985. Out of service and in need of refit if and when funds become available.

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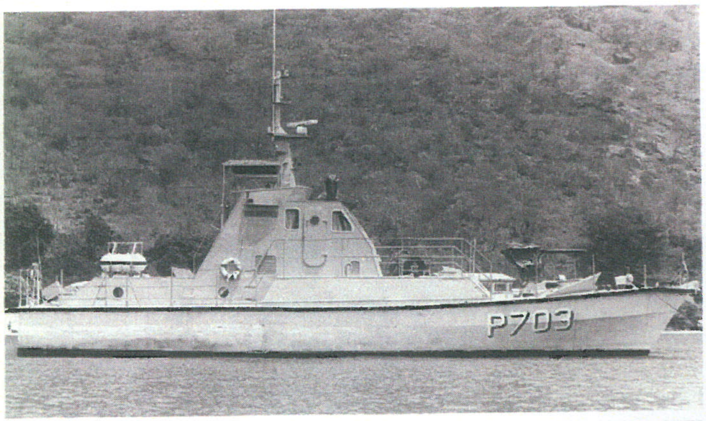

KASUNGU *6/1996, Malawi Navy* / 0012737

1 NAMACURRA CLASS (PB)

KANING'A (ex-*Y 1520*) P 704

Displacement, tons: 5 full load
Dimensions, feet (metres): 29.5 × 9 × 2.8 *(9 × 2.7 × 0.8)*
Main machinery: 2 BMW 3.3 outboards; 380 hp(m) *(279 kW)*
Speed, knots: 32. **Range, miles:** 180 at 20 kt
Complement: 4
Guns: 1—12.7 mm MG. 2—7.62 mm MGs.
Radars: Surface search: Decca; I-band.

Comment: Donated by South Africa on 29 October 1988.

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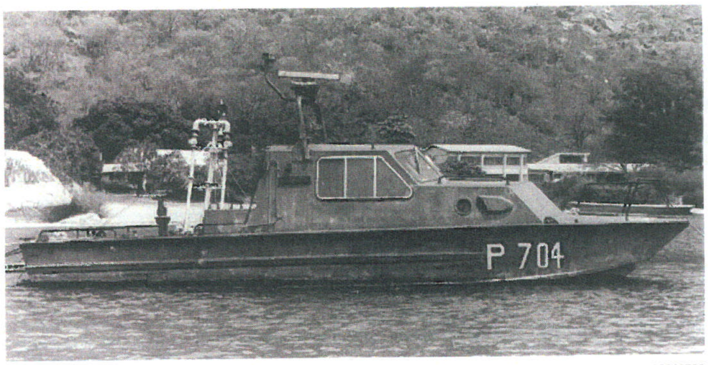

KANING'A *6/1997, Malawi Navy* / 0012736

1 ROTORK CLASS (LCU)

CHIKOKO I L 702

Displacement, tons: 9 full load
Dimensions, feet (metres): 41.5 × 10.5 × 1.5 *(12.7 × 3.2 × 0.5)*
Main machinery: 2 Volvo diesels; 260 hp(m) *(191 kW)*; 2 shafts
Speed, knots: 24. **Range, miles:** 3,000 at 15 kt
Complement: 8
Guns: 3—7.62 mm MGs.

Comment: Built by Rotork Marine. Needs a refit but no funds are available.

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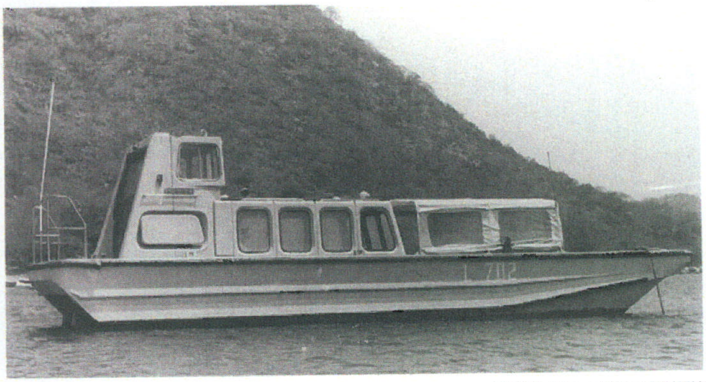


CHIKOKO I *6/1996, Malawi Navy* / 0012738

Malaysia

TENTERA LAUT DIRAJA

Country Overview

The Federation of Malaysia was formed in 1963. Situated in south-east Asia, its two regions are separated by some 350 n miles of the South China Sea. Peninsular Malaysia (formerly West Malaysia) is bordered to the north by Thailand and to the south by Singapore (which left the federation in 1965) and includes 11 states occupying the southern half of the Malay Peninsula. To the east, the states (former British colonies) of Sabah and Sarawak (which surrounds the sultanate of Brunei) occupy the northern third of the island of Borneo, the remainder of which forms the Indonesian province of Kalimantan. With an overall land area of 127,320 square miles, Malaysia has a coastline of 2,527 n miles with the Strait of Malacca, the South China Sea, the Sulu and Celebes Seas. Kuala Lumpur is the capital and largest city while the principal ports are George Town, Klang, Tanjung Pelepas and Kuching. Territorial seas (12 n miles) are claimed. An EEZ (200 n miles) is claimed but the limits have not been fully defined.

Headquarters Appointments

Chief of Navy:
Admiral Datuk Mohd Anwar bin Mohd Nor
Deputy Chief of Navy:
Vice Admiral Dato' Ilyas bin H J Din
Fleet Commander:
Vice Admiral Datuk Ramlan bin Mohamed Ali
Commander Naval Area I (Kuantan):
First Admiral Laksma Mohd Amdan bin Kurish
Commander Naval Area II (Sabah and Sarawak):
First Admiral Datuk Abd Aziz bin H J Jaafar

Personnel

(a) 2004: 17,141 (2,013 officers)
(b) Voluntary service: Royal Malaysian Navy Voluntary Reserve (RMNVR): Total, 3,362 (1,061 officers)
(c) Bases for regular and reserve forces at Penang, Perak, Selangor, Kuala Lumpur, Pahang, Johor, Terengganu, Sabah den Sarawak.

Bases

(a) Lumut Naval Base comprises Fleet Operations Command, HQ Fleet System, HQ Support, Naval Education and Training Centre, Naval Air Station – KD *Rajawali*, Diving Centre and Special Forces Training Centre
(b) HQ Area 1 – Kuantan (West of 109E)
(c) HQ Area 2 – Labuan (East of 109E). Comprises mainly two forward bases, KD *Sri Sandakan* and KD *Sri Tawau*
(d) HQ Area 3 – Langkawi Island *
(e) Sapanggar Naval Base – Kota Kinabalu*

* Under construction to be completed 2005

Prefix to Ships' Names

The names of Malaysian warships are prefixed by KD (Kapal DiRaja meaning His Majesty's Ship).

Maritime Patrol Craft

There are large numbers of armed patrol craft belonging to the Police, Customs and Fisheries Departments. Details at the end of the section.

Strength of the Fleet

Type	*Active*	*Building (Planned)*
Submarines	–	2
Submarines Mini	–	3
Frigates	2	–
Corvettes	6	–
Offshore Patrol Vessels	2	6
Logistic Support Vessels	2	–
Fast Attack Craft—Missile	8	–
Fast Attack Craft—Gun	6	–
Patrol Craft	18	–
Minehunters	4	–
Survey Ships	2	–
LSTs	1	(1)
Training Ships	3	–

PENNANT LIST

Frigates

29	Jebat
30	Lekiu

Corvettes

25	Kasturi
26	Lekir
134	Laksamana Hang Nadim
135	Laksamana Tun Abdul Jamil
136	Laksamana Muhammad Amin
137	Laksamana Tan Pusmah
171	Kedah (bldg)
172	Pahang (bldg)
173	Perak (bldg)
174	Terengganu (bldg)
175	Kelantan (bldg)
176	Selangor (bldg)

Patrol Forces

34	Kris
36	Sundang
37	Badek
38	Renchong
39	Tombak
40	Lembing
41	Serampang
42	Panah
43	Kerambit
44	Beladau
45	Kelewang
46	Rentaka
47	Sri Perlis
49	Sri Johor
160	Musytari
161	Marikh
3144	Sri Sabah
3145	Sri Sarawak
3146	Sri Negri Sembilan
3147	Sri Melaka
3501	Perdana
3502	Serang
3503	Ganas
3504	Ganyang
3505	Jerong
3506	Todak
3507	Paus
3508	Yu
3509	Baung
3510	Pari
3511	Handalan
3512	Perkasa
3513	Pendekar
3514	Gempita

Mine Warfare Forces

11	Mahamiru
12	Jerai
13	Ledang
14	Kinabalu

Amphibious Forces

1505	Sri Inderapura

Training Ships

24	Rahmat
76	Hang Tuah
A 13	Tunas Samudera

Survey Ships

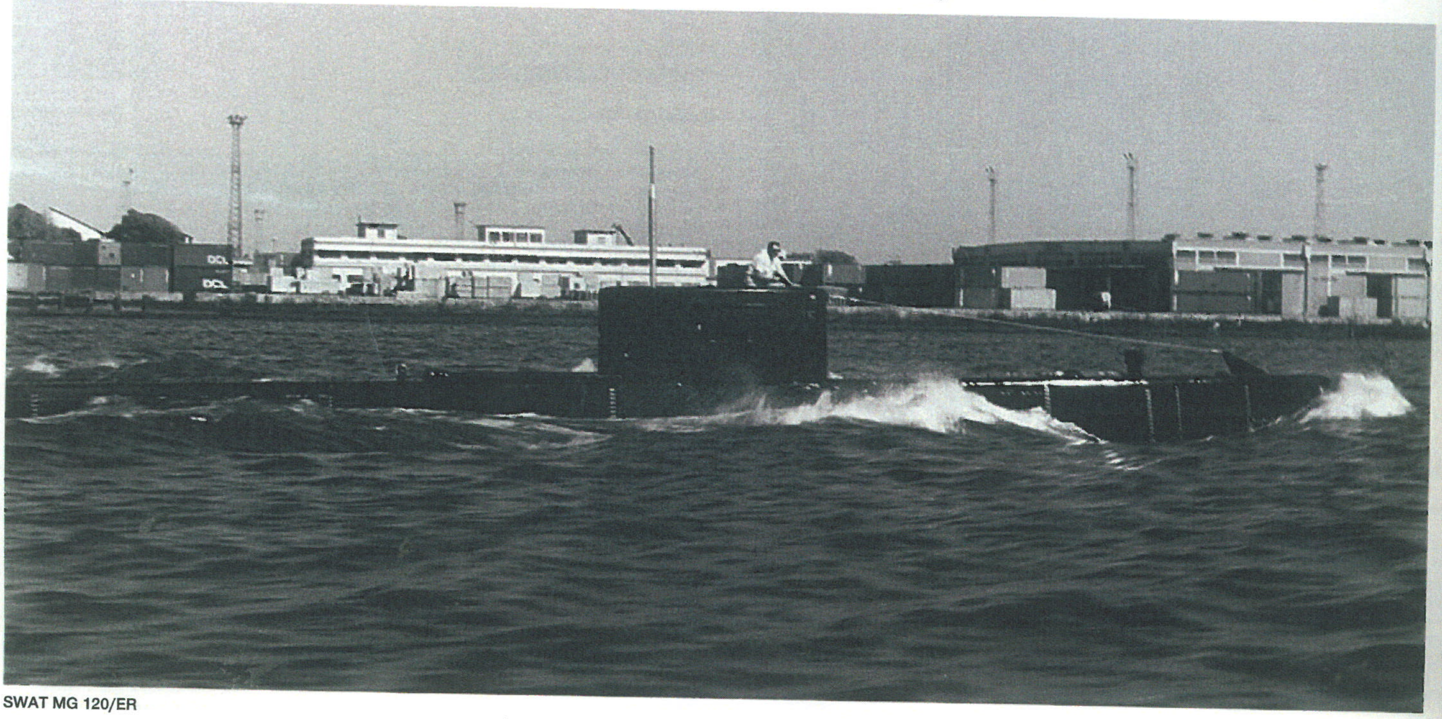
152	Mutiara
153	Perantau

Auxiliaries

4	Penyu
331	Sri Gaya
332	Sri Tiga
1503	Sri Indera Sakti
1504	Mahawangsa

SUBMARINES

Notes: (1) Contract placed with COSMOS in December 1999 for three 134 ton mini-submarines of a SWATS design. The hull is 29 m, has two torpedo tubes and can carry external SDVs. Diving depth 150 m, complement six plus 15 swimmers. AIP is likely. First in-service date 2005. Training is being done in Pakistan.
(2) The French 'Agosta' class submarine *Ouessant* is to be loaned to Malaysia to provide initial training until 2007. The boat continues to belong to the French Navy and is to be based at Brest. The submarine may go to Malaysia on completion of training.



SWAT MG 120/ER

1998 / 0007213

0 + 2 SCORPENE CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
–	–	DCN, Cherbourg	2002	2006	2008
–	–	Izar, Cartagena	2003	2007	2009

Displacement, tons: 1,564 surfaced; 1,711 dived
Dimensions, feet (metres): *217.9 × 20.3 × 19.0 (66.4 × 6.2 × 5.8)*
Main machinery: Diesel electric; 2 SEMT-Pielstick 12 PA4 200 SM DS diesels; 1 Jeumont Industrie motor; 4,700 hp *(3.5 MW)*; 1 shaft
Speed, knots: 20.5 dived; 12 surfaced
Range, miles: 360 at 4 kt dived; 6,000 at 8 kt surfaced
Complement: 31 (7 officers)

Missiles: SSM: Aerospatiale SM39 Exocet; launched from 21 in *(533 mm)* torpedo tubes; inertial cruise; active radar homing to 50 km *(27 n miles)* at 0.9 Mach; warhead 165 kg.
Torpedoes: 6—21 in *(533 mm)* tubes. Alenia Whitehead Black Shark torpedoes; wire (fibre-optic cable) guided; active and passive homing. Total of 18 weapons.
Countermeasures: ESM: Thales DR 3000; intercept.
Weapons control: UDS International SUBTICS.
Radars: Navigation: I-band.
Sonars: Hull mounted; active/passive search and attack, medium frequency.

Programmes: Contract for the construction of two submarines awarded to Armaris and IZAR on 5 June 2002. A four-year training programme aboard an Agosta-70 (ex-*Ouessant*) is included in the package.
Structure: Similar in design to the Chilean boats. Diving depth more than 300 m *(984 ft)*. Option to retrofit AIP at a later date.

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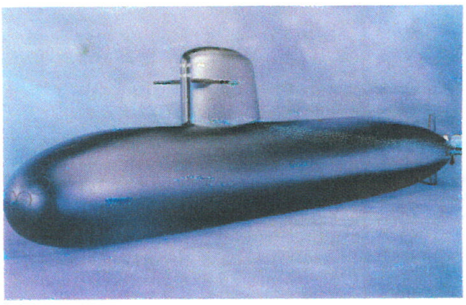


SCORPENE (computer graphic)
1998, DCN / 0017689

FRIGATES

Notes: Two older frigates are listed under Training Ships.

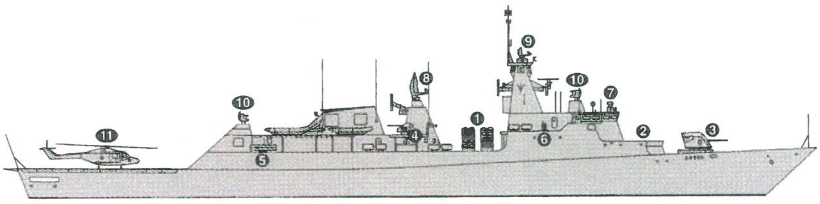
2 LEKIU CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
JEBAT	29	Yarrow (Shipbuilders), Glasgow	Nov 1994	27 May 1995	20 Nov 1999
LEKIU	30	Yarrow (Shipbuilders), Glasgow	Mar 1994	3 Dec 1994	9 Oct 1999

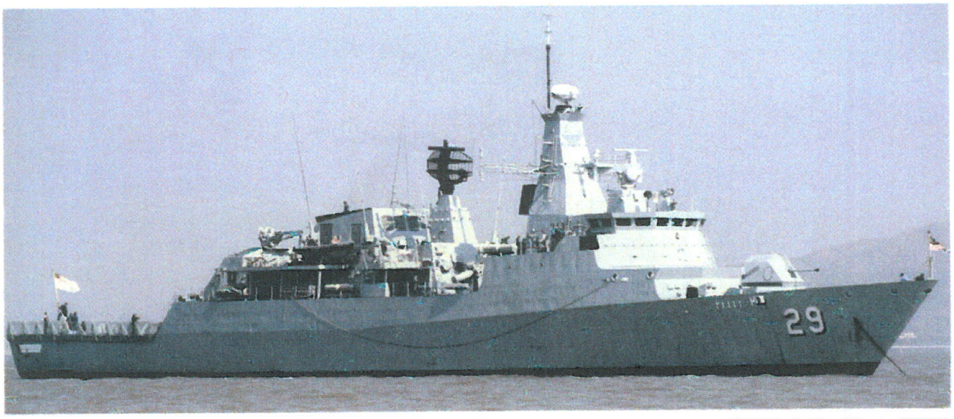
Displacement, tons: 1,845 standard; 2,390 full load
Dimensions, feet (metres): 346 oa; 319.9 wl × 42 × 11.8 *(105.5; 97.5 × 12.8 × 3.6)*
Main machinery: CODAD; 4 MTU 20V 1163 TB93 diesels; 33,300 hp(m) *(24.5 MW)* sustained; 2 shafts; Kamewa cp props
Speed, knots: 28. **Range, miles:** 5,000 at 14 kt
Complement: 146 (18 officers)

Missiles: SSM: 8 Aerospatiale MM 40 Exocet Block II ❶; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: British Aerospace VLS Seawolf; 16 launchers ❷; command line of sight (CLOS) radar/TV tracking to 6 km *(3.3 n miles)* at 2.5 Mach; warhead 14 kg.
Guns: 1 Bofors 57 mm/70 SAK Mk 2 ❸; 220 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg.
2 MSI 30 mm/75 DS 30B ❹; 650 rds/min to 10 km *(5.4 n miles)*; weight of shell 0.36 kg.
Torpedoes: 6 Whitehead B 515 324 mm (2 triple) tubes ❺; anti-submarine; Marconi Stingray; active/passive homing to 11 km *(5.9 n miles)* at 45 kt; warhead 35 kg (shaped charge).
Countermeasures: Decoys: 2 Super Barricade 12-barrelled launchers for chaff ❻; Graseby Sea Siren torpedo decoy.
ESM: AEG Telefunken/Marconi Mentor; intercept.
ECM: MEL Scimitar; jammer.
Combat data systems: GEC-Marconi Nautis-F; Signaal Link Y Mk 2.
Weapons control: Radamec 2400 Optronic director ❼. Thomson-CSF ITL 70 (for Exocet); GEC-Marconi Type V 3901 thermal imager.
Radars: Air search: Signaal DA08 ❽; E/F-band.
Surface search: Ericsson Sea Giraffe 150HC ❾; G/H-band.
Navigation: Racal Decca; I-band.
Fire control: 2 Marconi 1802 ❿; I/J-band.
Sonars: Thomson Sintra Spherion; hull-mounted active search and attack; medium frequency.

Helicopters: 1 Westland Super Lynx ⓫.



LEKIU
(Scale 1 : 900), Ian Sturton / 0081204



JEBAT
2/2001, Sattler/Steele / 0126376

Programmes: Contract announced 31 March 1992 for two ships originally classed as corvettes but uprated to light frigates. First steel cut in March 1993. *Jebat* is the senior ship and has therefore taken the lower pennant number.
Structure: GEC Naval Systems Frigate 2000 design with a modern combat data system and automated machinery control.
Operational: Delivery dates were delayed by weapon system integration problems but both arrived in Malaysia in early 2000. Form 23rd Frigate Squadron.

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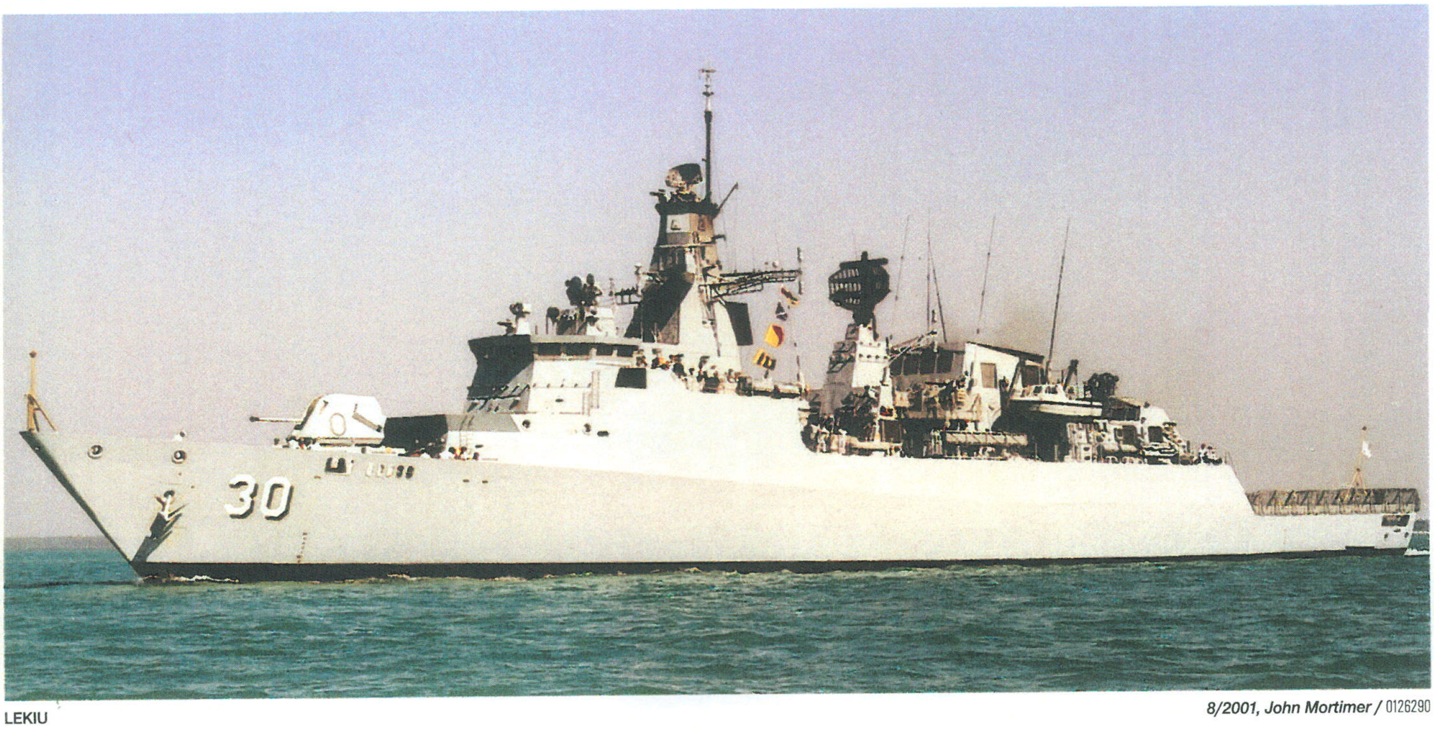

LEKIU
8/2001, John Mortimer / 0126290

CORVETTES

2 KASTURI (TYPE FS 1500) CLASS (FSGH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
KASTURI	25	Howaldtswerke, Kiel	3 Jan 1983	14 May 1983	15 Aug 1984
LEKIR	26	Howaldtswerke, Kiel	3 Jan 1983	14 May 1983	15 Aug 1984

Displacement, tons: 1,500 standard; 1,850 full load
Dimensions, feet (metres): 319.1 × 37.1 × 11.5 *(97.3 × 11.3 × 3.5)*
Main machinery: 4 MTU 20V 1163 TB92 diesels; 23,400 hp(m) *(17.2 MW)* sustained; 2 shafts
Speed, knots: 28; 18 on 2 diesels
Range, miles: 3,000 at 18 kt; 5,000 at 14 kt
Complement: 124 (13 officers)

Missiles: SSM: 8 Aerospatiale MM 40 Exocet Block II ❶; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.

Guns: 1 Creusot-Loire 3.9 in *(100 mm)*/55 Mk 2 compact ❷; 20/45/90 rds/min to 17 km *(9.2 n miles)* anti-surface; 6 km *(3.2 n miles)* anti-aircraft; weight of shell 13.5 kg.
1 Bofors 57 mm/70 ❸; 200 rds/min to 17 km *(9.2 n miles)*; weight of shell 2.4 kg. Launchers for illuminants.
4 Emerson Electric 30 mm (2 twin) ❹; 1,200 rds/min combined to 6 km *(3.2 n miles)*; weight of shell 0.35 kg.
A/S mortars: 1 Bofors 375 mm twin trainable launcher ❺; automatic loading; range 3,600 m.
Countermeasures: Decoys: 2 CSEE Dagaie trainable systems; replaceable containers for IR or chaff.
ESM: Rapids.
ECM: MEL Scimitar; jammer.
Combat data systems: Signaal Sewaco-MA. Link Y Mk 2.
Weapons control: 2 Signaal LIOD optronic directors for gunnery.
Radars: Air/surface search: Signaal DA08 ❻; F-band; range 204 km *(110 n miles)* for 2 m² target.
Navigation: Kelvin Hughes 1007; I-band.
Fire control: Signaal WM22 ❼; I/J-band.
IFF: US Mk 10.
Sonars: Atlas Elektronik DSQS-21C; hull-mounted; active search and attack; medium frequency.

Helicopters: Platform for 1 Westland Wasp HAS. Mk 1 ❽.

Programmes: First two ordered in February 1981. Fabrication began early 1982. Rated as Corvettes even though they are bigger ships than *Rahmat*.
Modernisation: Plans to fit telescopic hangars have been shelved. Mid-life update planned to include CIWS, and torpedo tubes vice the obsolete ASW mortar. Sewaco combat data system upgraded in 1997-98. Exocet upgraded to MM 40 2001-02.
Structure: Near sisters to the Colombian ships with differing armament.
Operational: *Kasturi* is the trials ship for 'smart ship' reduced manning. Form 22nd Corvette Squadron.

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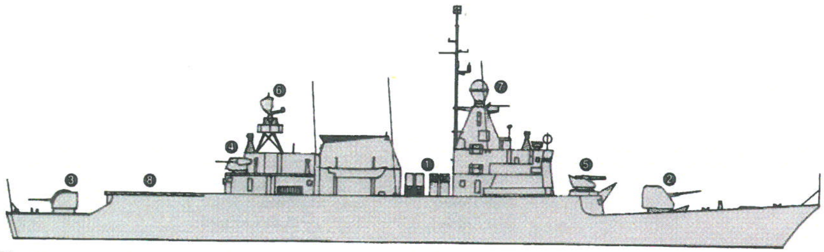


KASTURI

(Scale 1 : 900), Ian Sturton

LEKIR

10/2001, Chris Sattler / 0126291

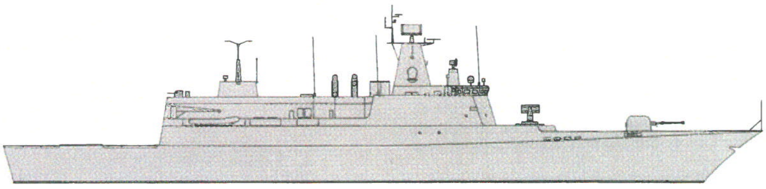
KASTURI

10/2002, Hachiro Nakai / 0526822

0 + 6 KEDAH (MEKO A 100) CLASS (FSGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
KEDAH	171	Blohm + Voss/Penang Shipbuilding	Oct 2001	Mar 2003	Sep 2004
PAHANG	172	Blohm + Voss/Penang Shipbuilding	Dec 2001	Oct 2003	Mar 2005
PERAK	173	Penang Shipbuilding	Aug 2003	Mar 2005	Oct 2005
TERENGGANU	174	Penang Shipbuilding	Aug 2004	Dec 2005	Apr 2006
KELANTAN	175	Penang Shipbuilding	July 2005	Nov 2006	June 2007
SELANGOR	176	Penang Shipbuilding	July 2006	Sep 2007	Feb 2008

Displacement, tons: 1,650 full load
Dimensions, feet (metres): 298.9 × 39.4 × 9.8 *(91.1 × 12.0 × 3.0)*
Main machinery: 2 Caterpillar 3616 diesels; total of 14,617 hp (m) *(10.9 MW)* sustained; 2 shafts; cp propellors
Speed, knots: 22. **Range, miles:** 6,050 at 12 kt
Complement: 68 (11 officers)
Missiles: Fitted for SSM (MM40) and SAM (RAM CIWS).
Guns: 1 Otobreda 3 in *(76 mm)*/62; Super Rapid; 120 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
1—30 mm Otobreda/Mauser. 2—12.7 mm MGs.
Countermeasures: Decoys: RBOC chaff launcher.
Combat data systems: STN Atlas Cosys 110M1.
Weapons control: Contraves TMEO optronic director.
Radars: Air/surface search: TRS-3D/16ES; G-band.
Sonars: Fitted for.
Helicopters: Platform for medium helicopter.


KEDAH *(Scale 1 : 900), Ian Sturton /* 0526838

Programmes: Following a delay of 19 months since initial signature, the Malaysian government, the Penang Shipbuilding Corporation and German Naval Group consortium (led by Blohm + Voss) reached final agreement in November 2000 for the supply of an initial batch of six vessels. The first two OPVs are being built in Germany for shipment to Malaysia and assembly and fitting out at Lumut. The first ship left Hamburg on 1 April 2003 and the second ship on 6 October 2003. Subsequent ships to be built in Malaysia. Delivery of the first ship to the Royal Malaysian Navy is expected in mid-2004 and all ships are to have been delivered by 2008.

Structure: Design based on Blohm + Voss MEKO A 100 including measures to reduce the radar and IR signatures. Space has been included for future enhancements which may include SSM, SAM, sonar and an EW suite.

Operational: Principal tasks are expected to be maritime surveillance and patrol duties in the Malaysian EEZ.

UPDATED

KEDAH *3/2003*, Michael Nitz /* 0552763

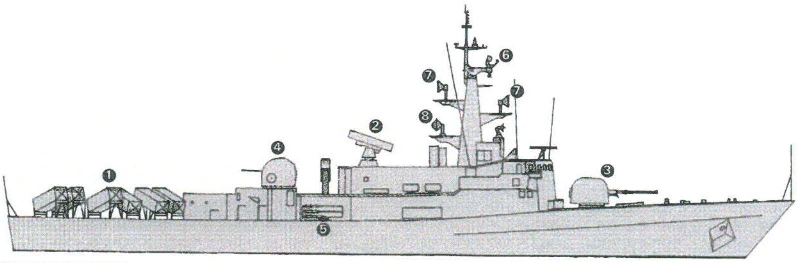
PAHANG *10/2003*, Michael Nitz /* 0568876

4 LAKSAMANA (ASSAD) CLASS (FSGM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
LAKSAMANA HANG NADIM (ex-*Khalid Ibn Al Walid*)	F 134 (ex-F 216)	Fincantieri, Breda, Mestre	3 June 1982	5 July 1983	28 July 1997
LAKSAMANA TUN ABDUL JAMIL (ex-*Saad Ibn Abi Waccade*)	F 135 (ex-F 218)	Fincantieri, Breda, Marghera	17 Sep 1982	2 Dec 1983	28 July 1997
LAKSAMANA MUHAMMAD AMIN (ex-*Abdulla Ben Abi Sarh*)	F 136 (ex-F 214)	Fincantieri, Breda, Mestre	22 Mar 1982	5 July 1983	31 July 1999
LAKSAMANA TAN PUSMAH (ex-*Salahi Ad Deen Alayoori*)	F 137 (ex-F 220)	Fincantieri, Breda, Marghera	17 Sep 1982	30 Mar 1984	31 July 1999

Displacement, tons: 705 full load
Dimensions, feet (metres): 204.4 × 30.5 × 8 *(62.3 × 9.3 × 2.5)*
Main machinery: 4 MTU 20V 956 TB92 diesels; 20,120 hp(m) *(14.8 MW)* sustained; 4 shafts
Speed, knots: 36. **Range, miles:** 2,300 at 18 kt
Complement: 47

Missiles: SSM: 6 OTO Melara/Matra Otomat Teseo Mk 2 (TG 2) (3 twin) ①; command guidance; active radar homing to 180 km *(98.4 n miles)* at 0.9 Mach; warhead 210 kg; sea-skimmer.
SAM: 1 Selenia/Elsag Albatros launcher ② (4 cell-2 reloads); Aspide; semi-active radar homing to 13 km *(7 n miles)* at 2.5 Mach; height envelope 15-5,000 m *(49.2-16,405 ft)*; warhead 30 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 Super Rapid ③; 120 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg.
2 Breda 40 mm/70 (twin) ④; 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
Torpedoes: 6—324 mm ILAS 3 (2 triple) tubes ⑤. Whitehead A244S; anti-submarine; active/passive homing to 7 km *(3.8 n miles)*; warhead 34 kg (shaped charge).
Countermeasures: Decoys: 2 Breda 105 mm 6-tubed multipurpose launchers; chaff to 5 km *(2.7 n miles)*; illuminants to 12 km *(6.6 n miles)*.
ESM: Selenia INS-3; intercept.
ECM: Selenia TQN-2; jammer.
Combat data systems: Selenia IPN 10; Signaal/AESN Link Y Mk 2.



LAKSAMANA HANG NADIM

(Scale 1 : 600), Ian Sturton / 0126348

Weapons control: 2 Selenia NA 21; Dardo.
Radars: Air/surface search: Selenia RAN 12L/X ⑥; D/I-band; range 82 km *(45 n miles)*.
Navigation: Kelvin Hughes 1007; I-band.
Fire control: 2 Selenia RTN 10X ⑦; I/J-band; 1 Selenia RTN 20X ⑧; I/J-band.
Sonars: Atlas Elektronik ASO 84-41; hull-mounted; active search and attack.

Programmes: Ordered in February 1981 for the Iraqi Navy and fell foul of UN sanctions before they could either be paid for or delivered. Subsequently completed in 1988 and maintained by Fincantieri. Two near sister ships were paid for by Iraq and remain laid up in Italian ports. Contract signed on 26 October 1995, and confirmed on 26 July 1996, to transfer two of the class to the Malaysian Navy after refit at Muggiano and three months training in Italy. Contract for two more signed on 20 February 1997 for conversion and delivery.
Modernisation: Super Rapid 76 mm gun, datalink, new navigation radar and GPS fitted in 1996. Bridge wings are extended to the after gun deck. Contract signed with Alenia Marconi on 11 April 2002 to upgrade command systems of F 134 and F 135 to IPN-S.
Structure: NBC citadel and full air conditioning fitted.
Operational: First pair arrived in Malaysia in September 1997. Second pair delayed by payment problems but arrived in September 1999. Constitute 24th Corvette Squadron.
Opinion: This was an unusual purchase because of the lack of equipment commonality with the rest of the Fleet.

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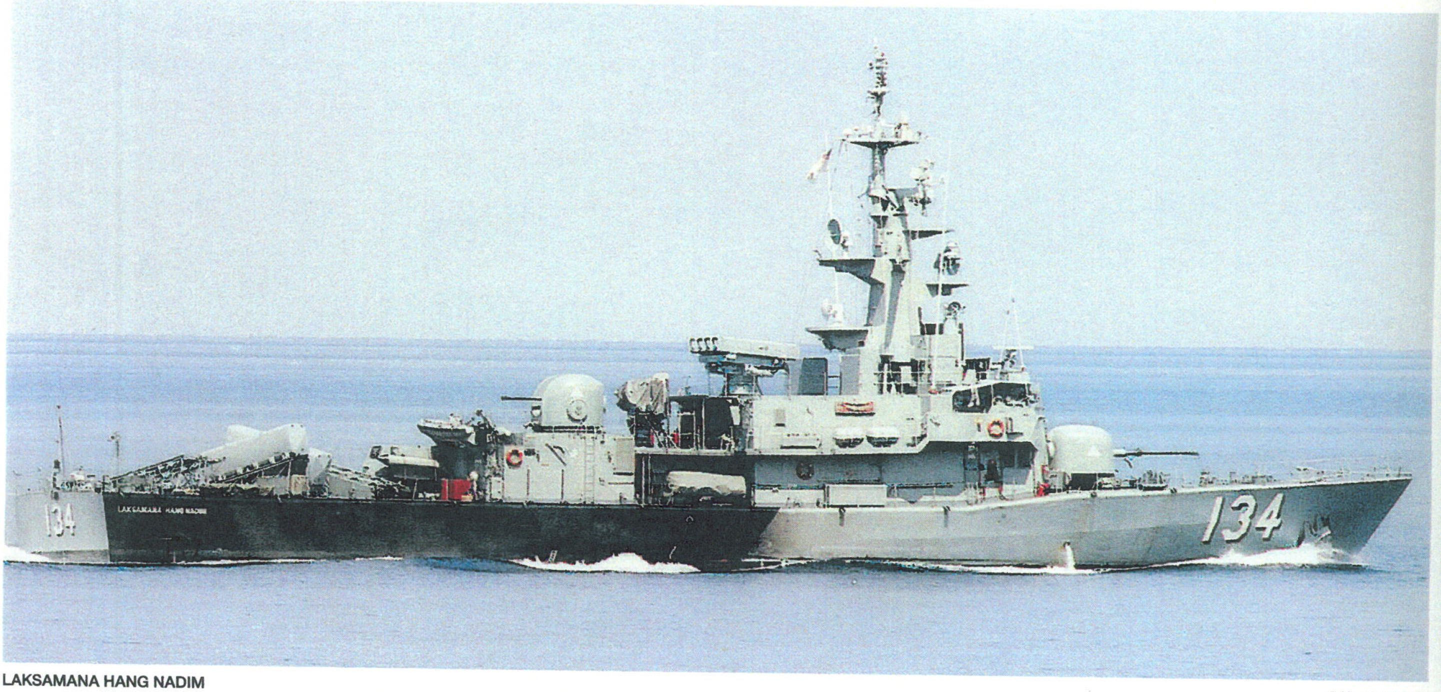

LAKSAMANA HANG NADIM

5/2001 / 0126341

LAKSAMANA TAN PUSMAH

10/2003, Hartmut Ehlers* / 0567894

SHIPBORNE AIRCRAFT

Notes: Sikorsky S-61A Nuri Army support helicopter can be embarked in two Logistic Support Ships and two OPVs.

NURI *6/1997* / 0081211

Numbers/Type: 6 GKN Westland Super Lynx.
Operational speed: 120 kt *(222 km/h).*
Service ceiling: 10,000 ft *(3,048 m).*
Range: 320 n miles *(593 km).*
Role/Weapon systems: Ordered on 3 September 1999. All delivered in 2003. Surveillance. Sensors: Seaspray radar; ESM: Sky Guardian 2500; MST-S FLIR. Weapons: ASW; two A244S torpedoes. ASV; Sea Skua ASM; 2—12.7 mm MG.

UPDATED

SUPER LYNX *9/2003*, Hartmut Ehlers* / 0567893

LAND-BASED MARITIME AIRCRAFT

Notes: The Air Force has eight F/A-18D fighter-bombers with Harpoon ASM, and 28 Hawk fighters with Sea Eagle ASM.

Numbers/Type: 6 Aerospatiale AS 555 Fennec.
Operational speed: 114 kt *(211 km/h).*
Service ceiling: 10,000 ft *(3,050 m).*
Range: 389 n miles *(722 km).*
Role/Weapon systems: Unarmed aircraft ordered late 2001 for delivery in June 2004. Utility, SAR and training roles. Sensors: RDR 1500B radar; EWR 99 Fruit RWR; ARGOS 410-A5 FLIR. Weapons: 7.62 mm MG.

UPDATED

FENNEC (on deck KD *Jebat*) *10/2001, Kathryn Shaw* / 0096316

Numbers/Type: 4 Beechcraft B 200T Super King.
Operational speed: 282 kt *(523 km/h).*
Service ceiling: 35,000 ft *(10,670 m).*
Range: 2,030 n miles *(3,756 km).*
Role/Weapon systems: Used for maritime surveillance. Acquired in 1994. Air Force operated. Sensors: Search radar. Weapons: Unarmed.

VERIFIED

SUPER KING *6/1993* / 0084007

PATROL FORCES

17 COMBATBOAT 90E (PBF)

TANGKIS 1
TEMPUR 11-15, 21-24, 32-34, 41-44

Displacement, tons: 19 full load
Dimensions, feet (metres): 52.2 × 12.5 × 2.6 *(15.9 × 3.8 × 0.8)*
Main machinery: 2 Volvo Penta TAMD 163P diesels; 1,500 hp(m) *(1.1 MW)*; 2 waterjets
Speed, knots: 45. **Range, miles:** 240 at 30 kt
Complement: 3
Guns: 1—7.62 mm MG.
Radars: Surface search: I-band.

Comment: Ordered from Dockstavarvet in Sweden in April 1997. Have more powerful engines than the boats in Swedish service. Primary role is martime law enforcement particularly on east coast of Sabah.

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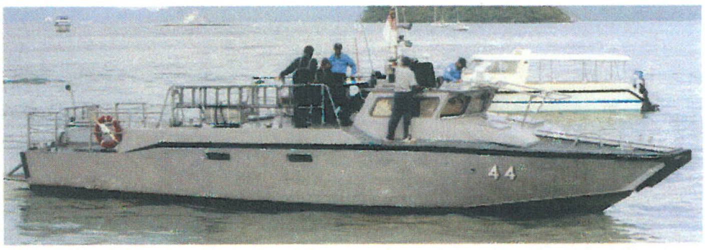

TEMPUR 44 *9/2003*, Hartmut Ehlers* / 0567892

4 PERDANA (LA COMBATTANTE II) CLASS
(FAST ATTACK CRAFT—MISSILE) (PTFG)

Name	*No*	*Builders*	*Launched*	*Commissioned*
PERDANA	3501	CMN, Cherbourg	31 May 1972	21 Dec 1972
SERANG	3502	CMN, Cherbourg	22 Dec 1971	31 Jan 1973
GANAS	3503	CMN, Cherbourg	26 Oct 1972	28 Feb 1973
GANYANG	3504	CMN, Cherbourg	16 Mar 1972	20 Mar 1973

Displacement, tons: 234 standard; 265 full load
Dimensions, feet (metres): 154.2 × 23.1 × 12.8 *(47 × 7 × 3.9)*
Main machinery: 4 MTU MB 870 diesels; 14,000 hp(m) *(10.3 MW)*; 4 shafts
Speed, knots: 36.5. **Range, miles:** 800 at 25 kt; 1,800 at 15 kt
Complement: 30 (4 officers)

Missiles: SSM: 2 Aerospatiale MM 38 Exocet; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer. Not always carried.
Guns: 1 Bofors 57 mm/70; 200 rds/min to 17 km *(9.2 n miles)*; weight of shell 2.4 kg.
1 Bofors 40 mm/70; 300 rds/min to 12 km *(6.5 n miles)* anti-surface; 4 km *(2.2 n miles)* anti-aircraft; weight of shell 0.96 kg.
Countermeasures: Decoys: 4—57 mm chaff/flare launchers.
ESM: Thomson-CSF DR 3000; intercept.
Weapons control: Thomson-CSF Vega optical for guns.
Radars: Air/surface search: Thomson-CSF TH-D 1040 Triton; G-band; range 33 km *(18 n miles)* for 2 m² target.
Navigation: Kelvin Hughes 1007; I-band.
Fire control: Thomson-CSF Pollux; I/J-band; range 31 km *(17 n miles)* for 2 m² target.

Programmes: Left Cherbourg for Malaysia 2 May 1973.
Modernisation: There are plans to replace MM 38 with MM 40 or Teseo SSMs and to update radar and EW.
Structure: All of basic La Combattante II design with steel hulls and aluminium superstructure.
Operational: Form 1st Fast Attack Craft Squadron.

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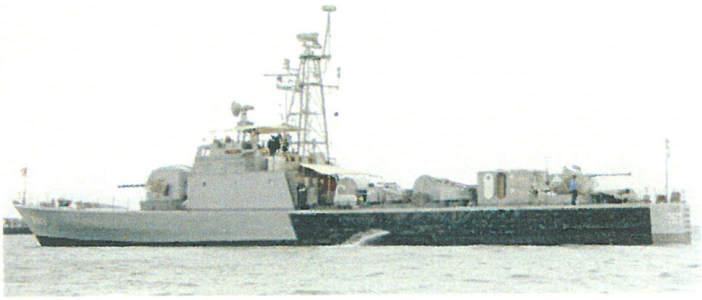

GANAS *10/2003*, Hartmut Ehlers* / 0567889

2 MUSYTARI CLASS (OFFSHORE PATROL VESSELS) (PSOH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
MUSYTARI	160	Korea Shipbuilders, Pusan	20 July 1984	19 Dec 1985
MARIKH	161	Malaysia SB and E Co, Johore	21 Jan 1985	9 Apr 1987

Displacement, tons: 1,300 full load
Dimensions, feet (metres): 246 × 35.4 × 12.1 *(75 × 10.8 × 3.7)*
Main machinery: 2 SEMT-Pielstick diesels; 12,720 hp(m) *(9.35 MW)*; 2 shafts
Speed, knots: 22. **Range, miles:** 5,000 at 15 kt
Complement: 76 (10 officers)
Guns: 1 Creusot-Loire 3.9 in *(100 mm)*/55 Mk 2 compact (161); 20/45/90 rds/min to 17 km *(9.2 n miles)* anti-surface; 6 km *(3.2 n miles)* anti-aircraft; weight of shell 13.5 kg.
1—40 mm (160).
2 Emerson Electric 30 mm (twin); 1,200 rds/min combined to 6 km *(3.2 n miles)*; weight of shell 0.35 kg.
Countermeasures: ESM: Thales DR 3000; intercept.
Weapons control: PEAB 9LV 230 optronic system.
Radars: Air/surface search: Signaal DA05; E/F-band; range 137 km *(75 n miles)* for 2 m² target.
Navigation: Kelvin Hughes 1007; I-band.
Fire control: Philips 9LV; J-band.
Helicopters: Platform for 1 medium.

Programmes: Ordered in June 1983. Names translate to Jupiter and Mars.
Structure: Flight deck suitable for Sikorsky S-61A Nuri army support helicopter.
Operational: Form 16th Offshore Patrol Vessel Squadron based at Kuantan.

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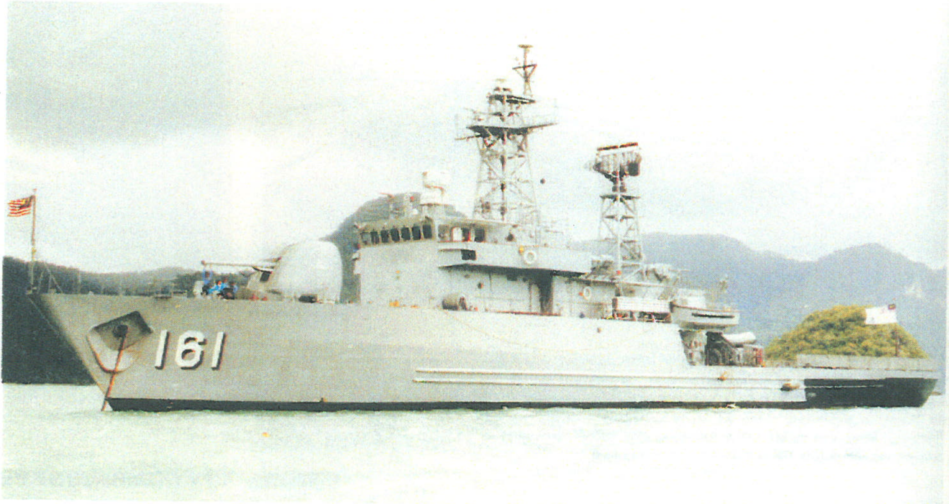
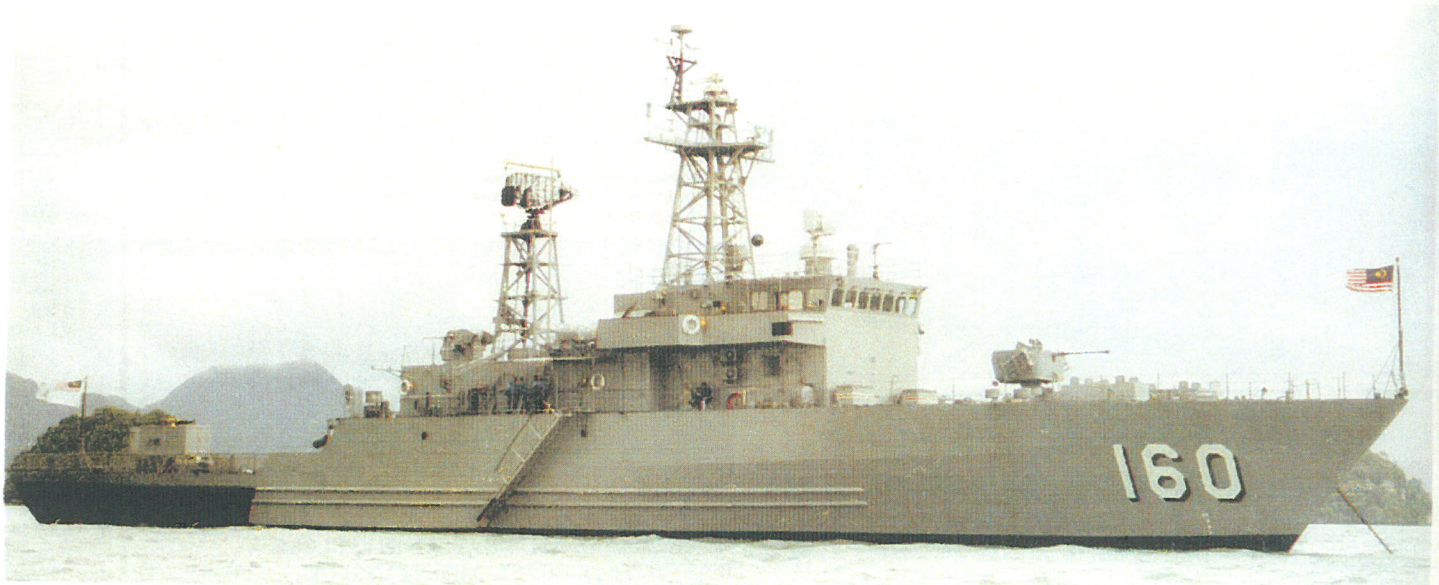

MARIKH

*10/2003**, ***Hartmut Ehlers*** / 0567891


MUSYTARI

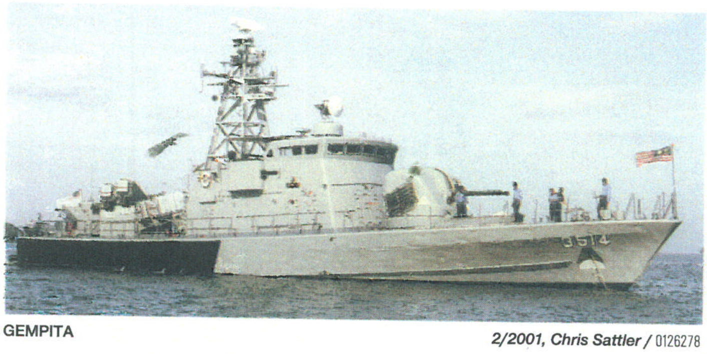
*10/2003**, ***Hartmut Ehlers*** / 0567890

4 HANDALAN (SPICA-M) CLASS (FAST ATTACK CRAFT—MISSILE) (PTFG)

Name	*No*	*Builders*	*Commissioned*
HANDALAN	3511	Karlskrona, Sweden	26 Oct 1979
PERKASA	3512	Karlskrona, Sweden	26 Oct 1979
PENDEKAR	3513	Karlskrona, Sweden	26 Oct 1979
GEMPITA	3514	Karlskrona, Sweden	26 Oct 1979

Displacement, tons: 240 full load
Dimensions, feet (metres): 142.6 × 23.3 × 7.4 (screws) *(43.6 × 7.1 × 2.4)*
Main machinery: 3 MTU 16V 538 TB91 diesels; 9,180 hp(m) *(6.75 MW)* sustained; 3 shafts
Speed, knots: 34.5. **Range, miles:** 1,850 at 14 kt
Complement: 40 (6 officers)

Missiles: SSM: 4 Aerospatiale MM 38 Exocet; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 1 Bofors 57 mm/70 Mk 1; 200 rds/min to 17 km *(9.2 n miles)*; weight of shell 2.4 kg. Illuminant launchers.
1 Bofors 40 mm/70; 300 rds/min to 12 km *(6.5 n miles)* anti-surface; 4 km *(2.2 n miles)* anti-aircraft; weight of shell 0.96 kg.
Countermeasures: ESM: Thales DR 3000; intercept.
Weapons control: 1 PEAB 9LV212 Mk 2 weapon control system with TV tracking. LME anti-aircraft laser and TV rangefinder.
Radars: Surface search: Philips 9GR 600; I-band (agile frequency).
Navigation: Kelvin Hughes 1007; I-band.
Fire control: Philips 9LV 212; J-band.


GEMPITA

2/2001, ***Chris Sattler*** / 0126278

Programmes: Ordered 15 October 1976. All named in one ceremony on 11 November 1978, arriving in Port Klang on 26 October 1979.
Modernisation: There are plans to replace the MM 38 with MM 40 or Teseo missiles and to update radar and EW.
Structure: Bridge further forward than in Swedish class to accommodate Exocet. Plans to fit an ASW capability were shelved and the sonar removed.
Operational: Form 2nd Fast Attack Craft Squadron.

UPDATED

6 JERONG CLASS (FAST ATTACK CRAFT—GUN) (PB)

Name	*No*	*Builders*	*Commissioned*
JERONG	3505	Hong Leong-Lürssen, Butterworth	27 Mar 1976
TODAK	3506	Hong Leong-Lürssen, Butterworth	16 June 1976
PAUS	3507	Hong Leong-Lürssen, Butterworth	16 Aug 1976
YU	3508	Hong Leong-Lürssen, Butterworth	15 Nov 1976
BAUNG	3509	Hong Leong-Lürssen, Butterworth	11 Jan 1977
PARI	3510	Hong Leong-Lürssen, Butterworth	23 Mar 1977

Displacement, tons: 244 full load
Dimensions, feet (metres): 147.3 × 23 × 8.3 *(44.9 × 7 × 2.5)*
Main machinery: 3 MTU MB 16V 538 TB90 diesels; 9,000 hp(m) *(6.6 MW)* sustained; 3 shafts
Speed, knots: 32. **Range, miles:** 2,000 at 14 kt
Complement: 36 (4 officers)
Guns: 1 Bofors 57 mm/70 Mk 1. 200 rds/min to 17 km *(9.2 n miles)*; weight of shell 2.4 kg.
1 Bofors 40 mm/70.
Countermeasures: ESM: Thales DR 3000; intercept.
Radars: Surface search: Kelvin Hughes 1007; I-band.

Comment: Lürssen 45 type. Illuminant launchers on both gun mountings. Design of hull modification is reported to have been contracted.

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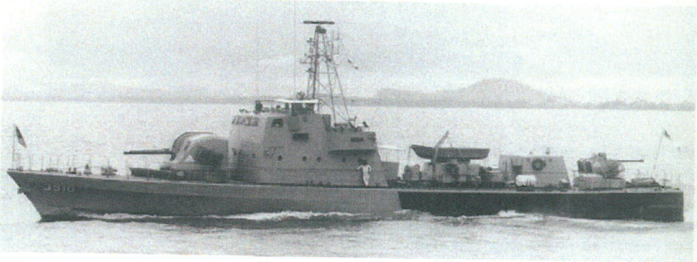

PARI

5/1990, ***John Mortimer*** / 0081217

18 31 METRE PATROL CRAFT (PB)

Name	*No*	*Builders*	*Commissioned*
SRI SABAH	3144	Vosper Ltd, Portsmouth	2 Sep 1964
SRI SARAWAK	3145	Vosper Ltd, Portsmouth	30 Sep 1964
SRI NEGRI SEMBILAN	3146	Vosper Ltd, Portsmouth	28 Sep 1964
SRI MELAKA	3147	Vosper Ltd, Portsmouth	2 Nov 1964
KRIS	34	Vosper Ltd, Portsmouth	1 Jan 1966
SUNDANG	36	Vosper Ltd, Portsmouth	29 Nov 1966
BADEK	37	Vosper Ltd, Portsmouth	15 Dec 1966
RENCHONG	38	Vosper Ltd, Portsmouth	17 Jan 1967
TOMBAK	39	Vosper Ltd, Portsmouth	2 Mar 1967
LEMBING	40*	Vosper Ltd, Portsmouth	12 Apr 1967
SERAMPANG	41	Vosper Ltd, Portsmouth	19 May 1967
PANAH	42	Vosper Ltd, Portsmouth	27 July 1967
KERAMBIT	43*	Vosper Ltd, Portsmouth	28 July 1967
BELADAU	44*	Vosper Ltd, Portsmouth	12 Sep 1967
KELEWANG	45	Vosper Ltd, Portsmouth	4 Oct 1967
RENTAKA	46	Vosper Ltd, Portsmouth	22 Sep 1967
SRI PERLIS	47*	Vosper Ltd, Portsmouth	24 Jan 1968
SRI JOHOR	49*	Vosper Ltd, Portsmouth	14 Feb 1968

* Training

Displacement, tons: 96 standard; 109 full load
Dimensions, feet (metres): 103 × 19.8 × 5.5 *(31.4 × 6 × 1.7)*
Main machinery: 2 Bristol Siddeley or MTU MD 655/18 diesels; 3,500 hp(m) *(2.57 MW)*; 2 shafts
Speed, knots: 27. **Range, miles:** 1,400 (1,660 'Sabah' class) at 14 kt
Complement: 22 (3 officers)
Guns: 2 Bofors 40 mm/70. 2—7.62 mm MGs.
Radars: Surface search: Racal Decca Bridgemaster ARPA; I-band.

Comment: The four 'Sabah' class were ordered in 1963 for delivery in 1964. The boats of the 'Kris' class were ordered in 1965 for delivery between 1966 and 1968. All are of prefabricated steel construction and are fitted with air conditioning and Vosper roll damping equipment. The differences between the classes are minor, the later ones having improved radar, communications, evaporators and engines of MTU, as opposed to Bristol Siddeley construction. All have been refitted to extend their operational lives. Eight form the 13th Patrol Craft Squadron, based at Sandakan, and eight form the 14th Patrol Craft Squadron based at Kuantan. Two form the 12th Patrol Craft Squadron based at Lumut.

UPDATED

SERAMPANG *11/2001, Maritime Photographic* / 0130744

SUNDANG *4/1997, Maritime Photographic* / 0012749

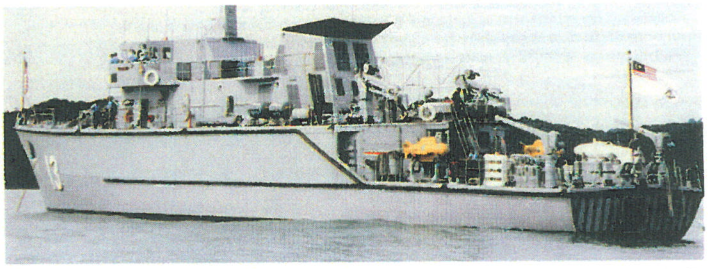
MINE WARFARE FORCES

4 MAHAMIRU (LERICI) CLASS (MINEHUNTERS) (MHC)

Name	*No*	*Builders*	*Launched*	*Commissioned*
MAHAMIRU	11	Intermarine, Italy	23 Feb 1984	11 Dec 1985
JERAI	12	Intermarine, Italy	5 Jan 1984	11 Dec 1985
LEDANG	13	Intermarine, Italy	14 July 1983	11 Dec 1985
KINABALU	14	Intermarine, Italy	19 Mar 1983	11 Dec 1985

Displacement, tons: 610 full load
Dimensions, feet (metres): 167.3 × 32.5 × 9.2 *(51 × 9.9 × 2.8)*
Main machinery: 2 MTU 12V 396 TC82 diesels (passage); 2,605 hp(m) *(1.91 MW)* sustained; 2 shafts; Kamewa cp props; 3 Fincantieri Isotta Fraschini ID 36 SS 6V diesels; 1,481 hp(m) *(1.09 MW)* sustained; 2 Riva Calzoni hydraulic thrust jets
Speed, knots: 16 diesels; 7 thrust jet. **Range, miles:** 2,000 at 12 kt
Complement: 42 (5 officers)
Guns: 1 Bofors 40 mm/70; 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
Countermeasures: Thomson-CSF IBIS II minehunting system; 2 improved PAP 104 ROVs. Oropesa 'O' MIS-4 mechanical sweep.
Radars: Navigation: Kelvin Hughes 1007; Thomson-CSF Tripartite III; I-band.
Sonars: Thomson Sintra TSM 2022 with Display 2060; minehunting; high frequency.

Comment: Ordered on 20 February 1981. All arrived in Malaysia on 26 March 1986. Heavy GRP construction without frames. Snach active tank stabilisers. Draeger Duocom decompression chamber. Slightly longer than Italian sisters. Endurance, 14 days. Upgrade of tactical data system completed in 2001; Minehunter Technical Display System (MTDS) installed by Altech Defence System, South Africa. Form the 26th Mine Countermeasures Squadron. ***UPDATED***



LEDANG *10/2001, Chris Sattler* / 0126276

AMPHIBIOUS FORCES

1 NEWPORT CLASS (LSTH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SRI INDERAPURA (ex-*Spartanburg County*)	1505 (ex-1192)	National Steel, San Diego	7 Feb 1970	11 Nov 1970	1 Sep 1971

Displacement, tons: 4,975 light; 8,450 full load
Dimensions, feet (metres): 522.3 (hull) × 69.5 × 17.5 (aft) *(159.2 × 21.2 × 5.3)*
Main machinery: 6 ALCO 16-251 diesels; 16,500 hp *(12.3 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 20. **Range, miles:** 14,250 at 14 kt
Complement: 257 (13 officers)
Military lift: 400 troops (20 officers); 500 tons vehicles; 3 LCVPs and 1 LCPL on davits

Guns: 1 General Electric/General Dynamics 20 mm Vulcan Phalanx Mk 15.
Radars: Surface search: Raytheon SPS-67; G-band.
Navigation: Marconi LN66; I/J-band.
Kelvin Hughes 1007; I-band.

Helicopters: Platform only.

Programmes: Transferred by sale from the USN 16 December 1994, arriving in Malaysia in June 1995. Second authorised for transfer by lease in 1998 but this was not confirmed.
Structure: The hull form required to achieve 20 kt would not permit bow doors, thus these ships unload by a 112 ft ramp over their bow. The ramp is supported by twin derrick arms. A ramp just forward of the superstructure connects the lower tank deck with the main deck and a vehicle passage through the superstructure provides access to the parking area amidships. A stern gate to the tank deck permits unloading of amphibious tractors into the water, or unloading of other vehicles into an LCU or onto a pier. Vehicle stowage covers 19,000 sq ft. Length over derrick arms is 562 ft *(171.3 m)*; full load draught is 11.5 ft forward and 17.5 ft aft.

Operational: 3 in guns removed before transfer. Repeated refits in Johore shipyard between late 1995 and 1998. Damaged by fire on 15 December 2002 at Lumut.

UPDATED

SRI INDERAPURA *5/1995, Robert Pabst* / 0081219

33 LCM/LCP/LCU

LCM 1-5 **LCP 1-15** **RCP 1-9** **LCU 1-4**

Displacement, tons: 56 (LCM); 30 (LCU/RCP); 18.5 (LCVP) full load
Main machinery: 2 diesels; 330 hp *(246 kW)* (LCM); 400 hp *(298 kW)* (LCVP); 2 shafts
Speed, knots: 10 (LCM); 16 (LCVP); 17 (LCU/RCP)
Military lift: 30 tons (LCM); 35 troops (LCU/RCP/LCP)

Comment: LCMs and LCPs are Australian built and transferred 1965-70. LCMs have light armour on sides and some have gun turrets. RCPs and LCUs are Malaysian built and in service 1974-84. Transferred to the Army in 1993.

VERIFIED

LCM 5 (with gun turret) *6/1995* / 0012753

130 DAMEN ASSAULT CRAFT 540 (LCP)

Dimensions, feet (metres): 17.7 × 5.9 × 2 *(5.4 × 1.8 × 0.6)*
Main machinery: 1 outboard; 40 hp(m) *(29.4 kW)*
Speed, knots: 12
Military lift: 10 troops

Comment: First 65 built by Damen Gorinchem, Netherlands in 1986. Remainder built by Limbungan Timor SY. Army assault craft. Manportable and similar to Singapore craft. Used by the Army. Some have been deleted.
VERIFIED

AUXILIARIES

2 LOGISTIC SUPPORT SHIPS (AOR/AE/AXH)

Name	*No*	*Builders*	*Commissioned*
SRI INDERA SAKTI	1503	Bremer Vulkan	24 Oct 1980
MAHAWANGSA	1504	Korea Tacoma	16 May 1983

Displacement, tons: 4,300 (1503); 4,900 (1504) full load
Dimensions, feet (metres): 328; 337.9 (1504) × 49.2 × 15.7 *(100; 103 × 15 × 4.8)*
Main machinery: 2 Deutz KHD SBV6M540 diesels; 5,865 hp(m) *(4.31 MW)*; 2 shafts; cp props; bow thruster
Speed, knots: 16.5. **Range, miles:** 4,000 at 14 kt
Complement: 136 (14 officers) plus 65 spare
Military lift: 17 tanks; 600 troops
Cargo capacity: 1,300 tons dieso; 200 tons fresh water (plus 48 tons/day distillers)

Guns: 2 Bofors 57 mm Mk 1 (1 only fwd in 1503). 2 Oerlikon 20 mm.
Countermeasures: ESM: Thales DR 3000; intercept.
Weapons control: 2 CSEE Naja optronic directors (1 only in 1503).
Radars: Navigation: Kelvin Hughes 1007; I-band.

Helicopters: 1 Sikorsky S-61A Nuri (army support) can be carried.

Programmes: Ordered in October 1979 and 1981 respectively.
Modernisation: 100 mm gun included in original design but used for OPVs.
Structure: Fitted with stabilising system, vehicle deck, embarkation ramps port and starboard, recompression chamber and a stern anchor. Large operations room and a conference room are provided. Transfer stations on either beam and aft, light jackstay on both sides and a 15 ton crane for replenishment at sea. 1504 has additional capacity to transport ammunition and the funnel has been removed to enlarge the flight deck which is also higher in the superstructure.
Operational: Used as training ships for cadets in addition to main roles of long-range support of Patrol Forces and MCM vessels, command and communications and troop or ammunition transport.
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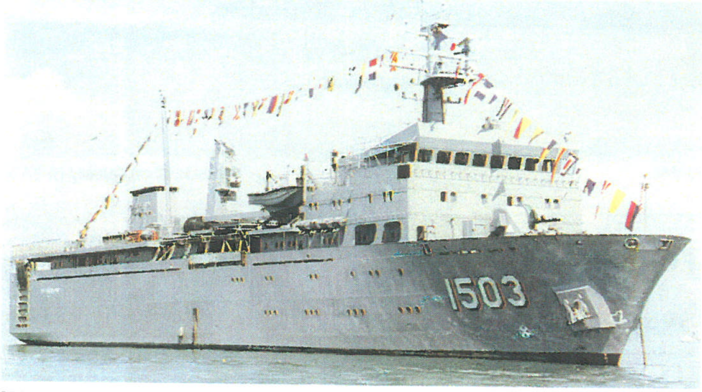
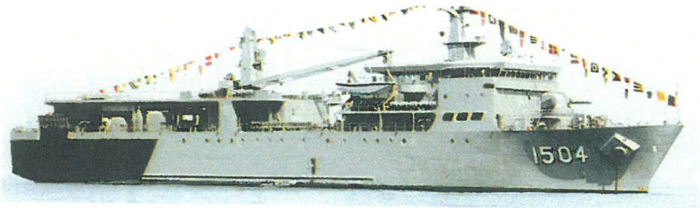


SRI INDERA SAKTI *10/2001, Chris Sattler* / 0126275



MAHAWANGSA *10/2001, Chris Sattler* / 0126274

2 FAST TROOP VESSELS (AP)

SRI GAYA 331 **SRI TIGA** 332

Displacement, tons: 116.5 full load
Dimensions, feet (metres): 123.1 × 23.0 × 3.6 *(37.5 × 7.0 × 1.1)*
Main machinery: 4 MAN D2842 LE 408 diesels; 2,080 hp *(1.55 MW)*; 4 water-jets
Speed, knots: 25. **Range, miles:** 540
Complement: 8
Military lift: 32 troops + stores
Radars: Navigation: Furuno; I-band.

Comment: Design based on Australian Wave Master fast-ferry monohull. Procured to transport troops and stores particularly in Sabah and Sarawak waters. Built by Naval Dockyard, Lumut and commissioned on 29 May 2001. Based at Labuan.
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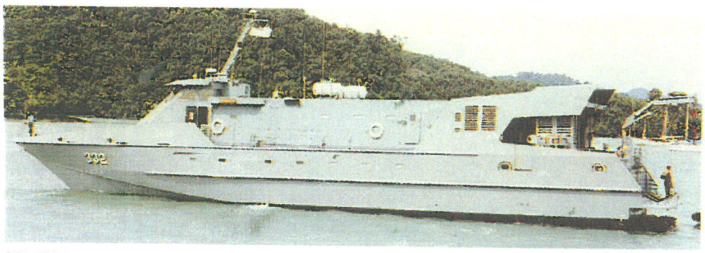


SRI TIGA *10/2001, Chris Sattler* / 0126273

7 COASTAL SUPPLY SHIPS AND TANKERS (AOTL/AKSL)

LANG TIRAM
MELEBAN
ENTERPRISE
JERNIH
KEPAH
TERIJAH
LANG SIPUT

Comment: Various auxiliaries mostly acquired in the early 1980s. There are also Sabah supply ships identified by M numbers.
VERIFIED

SURVEY SHIPS

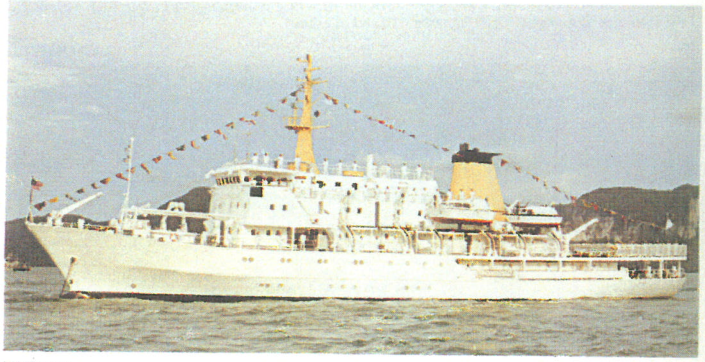
Notes: There is also an ex-Survey craft *Penyu* 4 of 465 tons commissioned in 1979. Used as a diving tender. Complement is 26 (two officers).

1 SURVEY VESSEL (AGSH)

Name	*No*	*Builders*	*Commissioned*
MUTIARA	152	Hong Leong-Lürssen, Butterworth	12 Jan 1978

Displacement, tons: 1,905 full load
Dimensions, feet (metres): 232.9 × 42.6 × 13.1 *(71 × 13 × 4)*
Main machinery: 2 Deutz SBA12M528 diesels; 4,000 hp(m) *(2.94 MW)*; 2 shafts
Speed, knots: 16. **Range, miles:** 4,500 at 16 kt
Complement: 155 (14 officers)
Guns: 4 Oerlikon 20 mm (2 twin).
Radars: Navigation: 2 Racal Decca 1226/1229; I-band.
Helicopters: Platform only.

Comment: Ordered in early 1975. Carries satellite navigation, auto-data system and computerised fixing system. Davits for six survey launches.
UPDATED



MUTIARA *9/2003*, Hartmut Ehlers* / 0567888

1 SURVEY VESSEL (AGS)

Name	*No*	*Builders*	*Commissioned*
PERANTAU	153	Hong Leong-Lürssen, Butterworth	12 Oct 1998

Displacement, tons: 1,996 full load
Dimensions, feet (metres): 222.4 × 43.6 × 13.1 *(67.8 × 13.3 × 4)*
Main machinery: 2 Deutz/MWM SBV8 M628 diesels; 4,787 hp(m) *(3.52 MW)*; 2 shafts; Berg cp props; Schottel bow thruster
Speed, knots: 16. **Range, miles:** 6,000 at 10 kt
Complement: 94 (17 officers)
Radars: Navigation: STN Atlas; I-band.

Comment: Ordered from Krogerwerft in 1996. The ship is equipped with two survey launches and four multipurpose boats and has three winches and two cranes, including a hoist for a STN Atlas side scan sonar. Full range of hydrographic and mapping equipment embarked.
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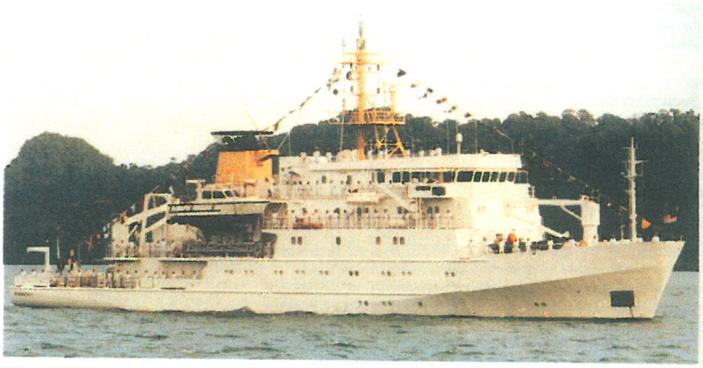

PERANTAU *10/2001, Hartmut Ehlers* / 0130737

PERANTAU *9/2003*, Hartmut Ehlers* / 0567884

TRAINING SHIPS

1 HANG TUAH (TYPE 41/61) CLASS (FFH/AX)

Name	*No*	*Builders*	*Commissioned*
HANG TUAH (ex-*Mermaid*)	76	Yarrow (Shipbuilders), Glasgow	16 May 1973

Displacement, tons: 2,300 standard; 2,520 full load
Dimensions, feet (metres): 339.3 × 40 × 16 (screws) *(103.5 × 12.2 × 4.9)*
Main machinery: 2 Stork Wärtsilä 12SW28 diesels; 9,928 hp(m) *(7.3 MW)* sustained; 2 shafts; cp props
Speed, knots: 24. **Range, miles:** 4,800 at 15 kt
Complement: 210
Guns: 1 Bofors 57 mm/70 Mk 1; 200 rds/min to 17 km *(9.2 n miles)*; weight of shell 2.4 kg.
2 Bofors 40 mm/70; 300 rds/min to 12 km *(6.5 n miles)* anti-surface; 4 km *(2.2 n miles)* anti-aircraft; weight of shell 0.96 kg.
Radars: Navigation: Kelvin Hughes 1007; I-band.
Helicopters: Platform for 1 Westland Wasp HAS. Mk 1 or Super Lynx.

Comment: Originally built for Ghana as a display ship for ex-President Nkrumah but put up for sale after his departure. She was launched without ceremony on 29 December 1966 and completed in 1968. Commissioned in Royal Navy 16 May 1973 and transferred to Royal Malaysian Navy May 1977. Refitted in 1991-92 to become a training ship. Main gun and main engines replaced in 1995-96. Sonars removed but Limbo mounting still fitted. There are no plans for further modifications.

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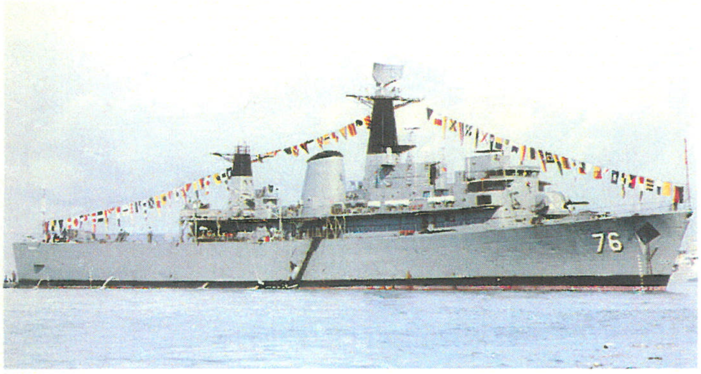


HANG TUAH *10/2001*, ***Chris Sattler*** / 0126271

1 RAHMAT CLASS (FFH/AX)

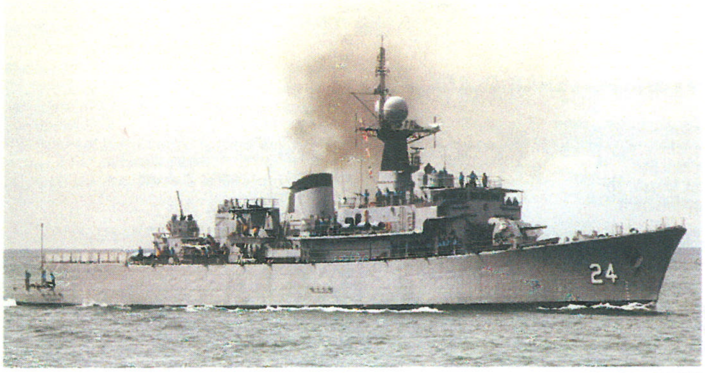
Name	*No*	*Builders*	*Launched*	*Commissioned*
RAHMAT (ex-*Hang Jebat*)	24	Yarrow, Glasgow	18 Dec 1967	31 Aug 1971

Displacement, tons: 1,250 standard; 1,600 full load
Dimensions, feet (metres): 308 × 34.1 × 14.8 *(93.9 × 10.4 × 4.5)*
Main machinery: CODOG; 1 Bristol Siddeley Olympus TM1B gas turbine; 20,626 hp *(15.4 MW)*; 1 Crossley Pielstick PC2.2 V diesel; 4,000 hp *(2.94 MW)*; 2 shafts; cp props
Speed, knots: 26 gas; 16 diesel. **Range, miles:** 6,000 at 16 kt; 1,000 at 26 kt
Complement: 140 (12 officers)

Guns: 3 Bofors 40 mm/70; 300 rds/min to 12 km *(6.5 n miles)* anti-surface; 4 km *(2.2 n miles)* anti-aircraft; weight of shell 0.96 kg.
Countermeasures: Decoys: 2 UK Mk I rail chaff launchers.
ESM: UA-3; radar intercept; FH4 HF D/F.
Radars: Surface search: Kelvin Hughes 1007; I-band.
Navigation: Kelvin Hughes MS 32; I-band.

Programmes: Ordered on 11 February 1966. Arrived on station 23 December 1972.
Modernisation: Seacat system removed during refit in 1982-83 and replaced by an additional Bofors gun. There are no plans for modernisation.
Operational: Can land helicopter on MacGregor hatch over former Mk 10 well. ASW equipment is all unserviceable and the Air Search radar has been removed and replaced by a 40 mm gun. Main engines reported unserviceable in 2003 and operational status is doubtful.

UPDATED



RAHMAT *11/2001*, ***Maritime Photographic*** / 0130743

1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Commissioned*
TUNAS SAMUDERA	A 13	Brooke Yacht, Lowestoft	16 Oct 1989

Displacement, tons: 239 full load
Dimensions, feet (metres): 114.8 × 25.6 × 13.1 *(35 × 7.8 × 4)*
Main machinery: 2 Perkins diesels; 370 hp *(272 kW)*; 2 shafts
Speed, knots: 9
Complement: 10 plus 26 trainees
Radars: Navigation: Racal Decca; I-band.

Comment: Laid down 1 December 1988 and launched 4 August 1989. Two-masted brig manned by the Navy but used for training all sea services.

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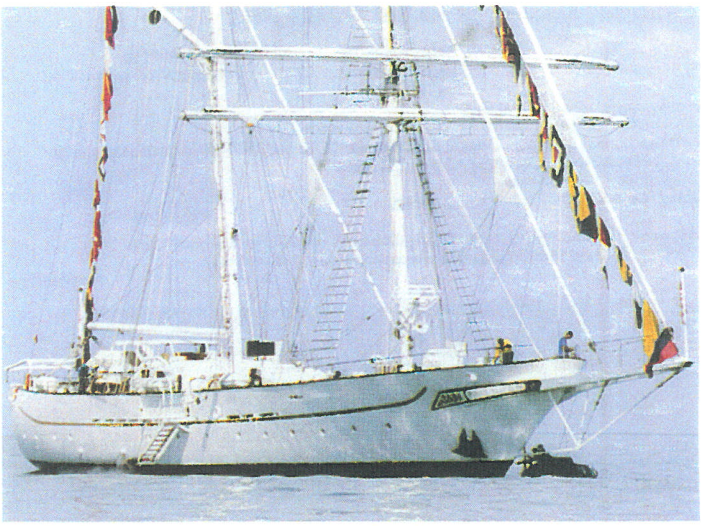


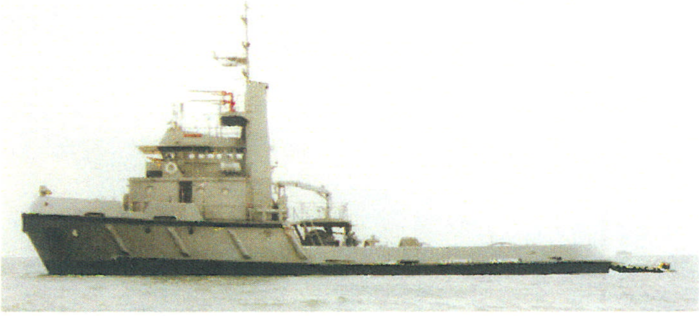
TUNAS SAMUDERA *10/2001*, ***Chris Sattler*** / 0126270

TUGS

12 HARBOUR TUGS (YTM/YTL)

TUNDA SATU 1-3
SIPUT
PENYU A4
SOTONG A 6
KETAM
BELAWKAS
SELAR
TERITUP
KEMPONG
TEPURUK

UPDATED



PENYU *10/2003**, ***Hartmut Ehlers*** / 0567883

GOVERNMENT MARITIME FORCES

Notes: (1) There are plans to establish a Maritime Enforcement Agency which will probably involve consolidation of Police, Customs and Fisheries services.
(2) A fourth government agency, the Fire and Rescue Department, operates at least eight 10 m rescue craft. Helicopters include Mi-17 and Agusta Westland A 109.

POLICE

14 LANG HITAM CLASS (PBF)

LANG HITAM PZ 1
LANG MALAM PZ 2
LANG LEBAH PZ 3
LANG KUIK PZ 4
BALONG PZ 5
BELIAN PZ 6
KURITA PZ 7
SERANGAN BATU PZ 8
HARIMAU BINTANG PZ 9
HARIMAU BELANG PZ 11
HARIMAU AKAR PZ 12
PERANGAN PZ 13
MERSUJI PZ 14
ALU-ALU PZ 15

Displacement, tons: 230 full load
Dimensions, feet (metres): 126.3 × 22.9 × 5.9 *(38.5 × 7 × 1.8)*
Main machinery: 2 MTU 20V 538 TB92 diesels; 8,360 hp(m) *(6.14 MW)* sustained; 2 shafts
Speed, knots: 35. **Range, miles:** 1,200 at 15 kt
Complement: 38 (4 officers)
Guns: 1 Bofors 40 mm/70 (in a distinctive plastic turret).
1 Oerlikon 20 mm. 2 FN 7.62 mm MGs.
Radars: Navigation: Kelvin Hughes; I-band.

Comment: Ordered from Hong Leong-Lürssen, Butterworth, Malaysia in 1979. First delivered August 1980, last in April 1983. One deleted in 1994.

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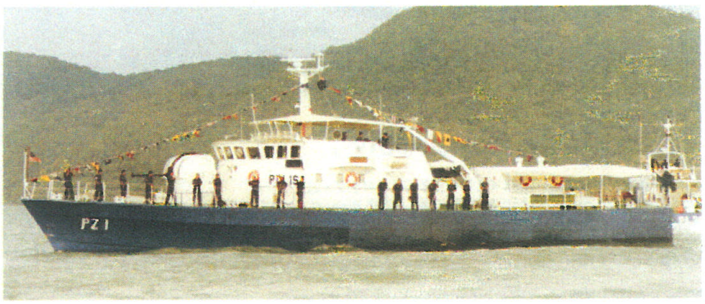

LANG HITAM *9/2003**, ***Hartmut Ehlers*** / 0567882

6 BROOKE MARINE 29 METRE CLASS (PBF)

SANGITAN PX 28
SABAHAN PX 29
DUNGUN PX 30
TIOMAN PX 31
TUMPAT PX 32
SEGAMA PX 33

Displacement, tons: 114 full load
Dimensions, feet (metres): 95.1 × 19.7 × 5.6 *(29 × 6 × 1.7)*
Main machinery: 2 Paxman Valenta 6CM diesels; 2,250 hp *(1.68 MW)* sustained; 2 shafts
Speed, knots: 36. **Range, miles:** 1,200 at 24 kt
Complement: 18 (4 officers)
Guns: 1 Oerlikon 20 mm. 2—7.62 mm MGs.

Comment: Ordered 1979 from Penang Shipbuilding Co. First delivery June 1981, last pair completed June 1982. Brooke Marine provided lead yard services.

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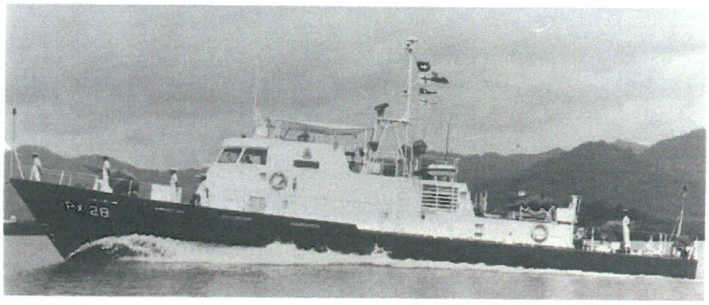
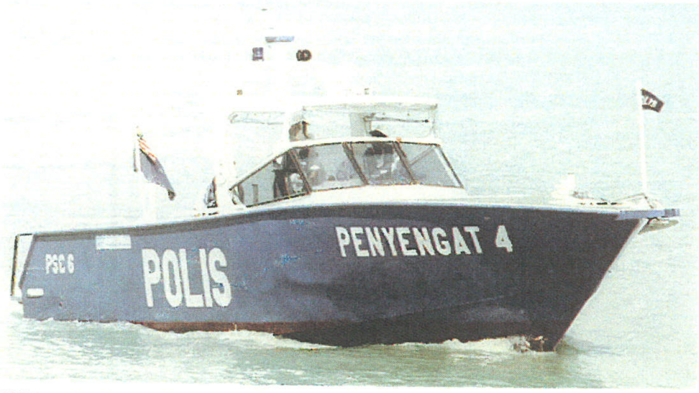


SANGITAN *1991, RM Police*

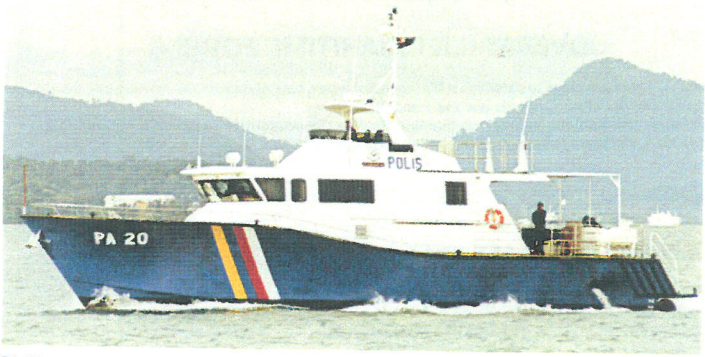
120 INSHORE/RIVER PATROL CRAFT (PBI/PBR)

Comment: Built in several batches and designs since 1964. Some are armed with 7.62 mm MGs. All have PA/PC/PGR/PSC numbers. Included are 23 Simonneau SM 465 type built between January 1992 and mid-1993.

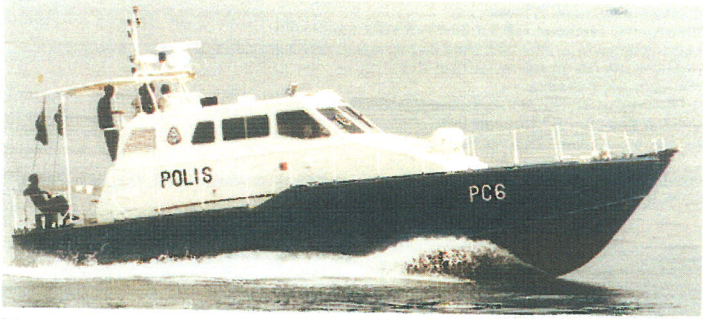
UPDATED



PSC 6 *10/2001, Chris Sattler* / 0126267



PA 20 *9/2003*, Hartmut Ehlers* / 0567887



PC 6 *4/1997, Maritime Photographic* / 0012763

6 STAN PATROL 1500 CLASS (PBF)

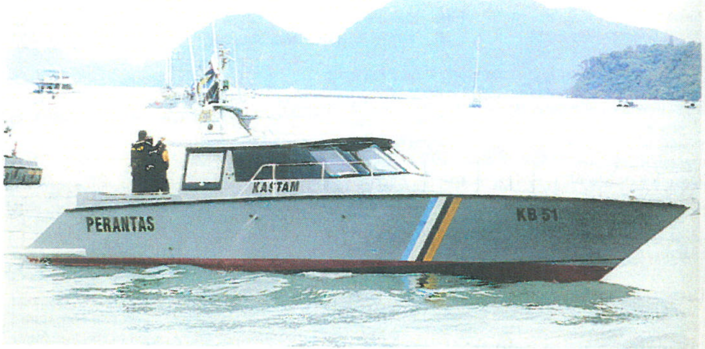
Dimensions, feet (metres): 48.6 × 8.9 × 2.6 *(14.8 × 2.7 × 0.8)*
Main machinery: 4 diesels; 4,500 hp(m) *(33.1 MW)*; 4 shafts; LIPS props
Speed, knots: 55
Complement: 8
Guns: 2—12.7 mm MGs.

Comment: Built in Malaysia and completed in 1998/99. Details are not confirmed.

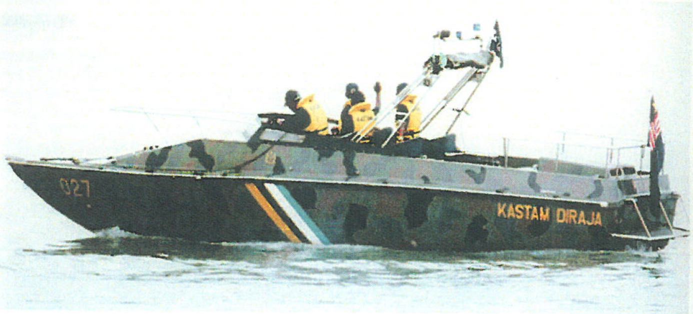
VERIFIED

CUSTOMS

Notes: In addition there are about 25 interceptor craft of 9 m, and 30 of 13.7 m and some inflatable chase boats.



KB 51 *10/2001, Chris Sattler* / 0126266



027 *10/2001, Chris Sattler* / 0126265

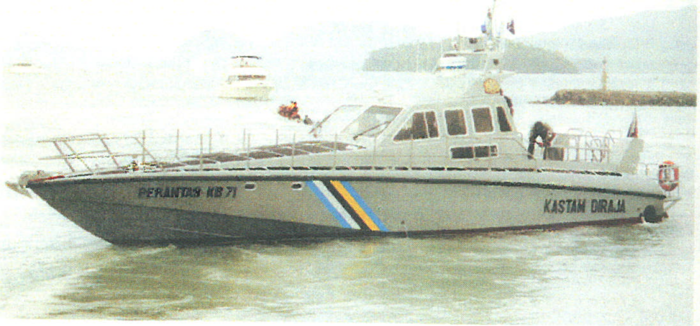
10 PERANTAS FAST INTERCEPT CRAFT (PBF)

KB 71 +9

Displacement, tons: 16.2 full load
Dimensions, feet (metres): 54.1 × 12.8 × ? *(16.5 × 3.9 × ?)*
Main machinery: 2 MTU 12V183 TE94 diesels; 2,600 hp *(1.94 MW)*; 2 Kamewa waterjets
Speed, knots: 45. **Range, miles:** 400 at 40 kt
Complement: 8

Comment: Built by Destination Marine Services, Port Klang. GRP hulls.

NEW ENTRY



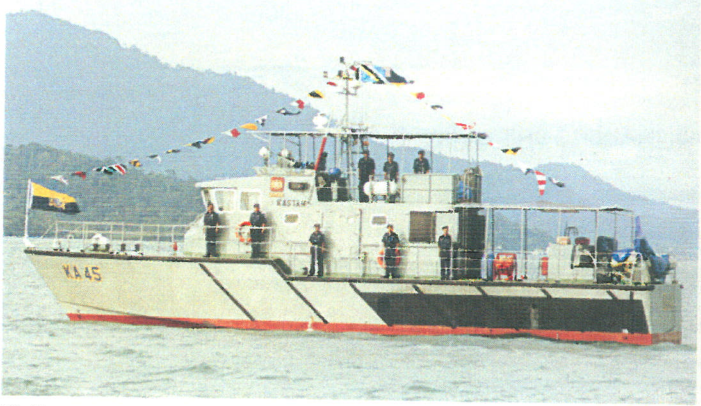
KB 71 *9/2003*, Hartmut Ehlers* / 0567881

4 PEMBANTERAS CLASS (PB)

Displacement, tons: 58 full load
Dimensions, feet (metres): 94.5 × 19.4 × 6.6 *(28.8 × 5.9 × 2)*
Main machinery: 2 Deutz SBA16M816C diesels; 3,140 hp(m) *(2.31 MW)*; 2 shafts
Speed, knots: 20
Complement: 8

Comment: Built at Limbungan Timor shipyard, Terengganu and completed in 1993.

UPDATED



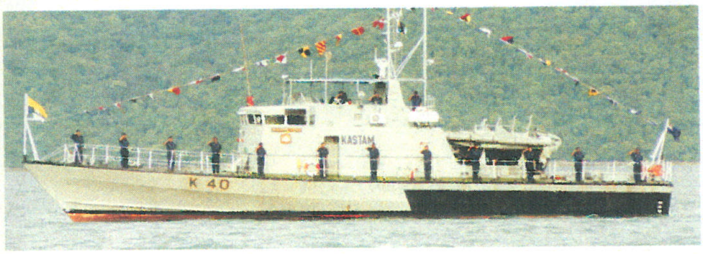
KA 45 *9/2003*, Hartmut Ehlers* / 0567886

10 VOSPER 32 METRE PATROL CRAFT (PB)

JUANG K 33
PULAI K 34
— K 35
PERAK K 36
BAYU K 37
HIJAU K 38
— K 39
JERAI K 40
— K 41
— K 42

Displacement, tons: 143 full load
Dimensions, feet (metres): 106.2 × 23.6 × 5.9 *(32.4 × 7.2 × 1.8)*
Main machinery: 2 Paxman Valenta 16CM diesels; 6,650 hp *(5 MW)* sustained; 2 shafts
1 Cummins diesel; 575 hp *(423 kW)*; 1 shaft
Speed, knots: 27; 8 on cruise diesel. **Range, miles:** 2,000 at 8 kt
Complement: 26
Guns: 1 Oerlikon 20 mm. 2—7.62 mm MGs.
Radars: Surface search: Kelvin Hughes; I-band.

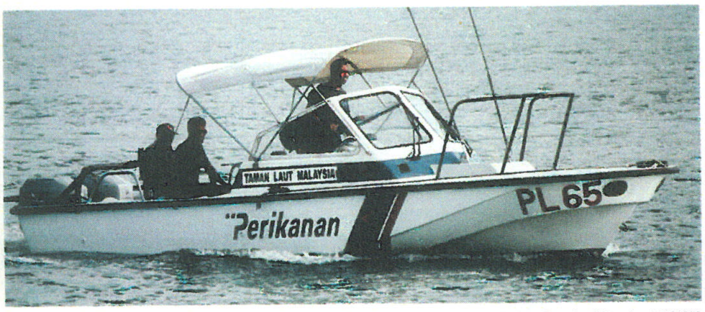
Comment: Ordered February 1981 from Malaysia Shipyard and Engineering Company with technical support from Vosper Thornycroft (Private) Ltd, Singapore. Two completed 1982, the remainder in 1983-84. Names are preceded by 'Bahtera'. ***UPDATED***



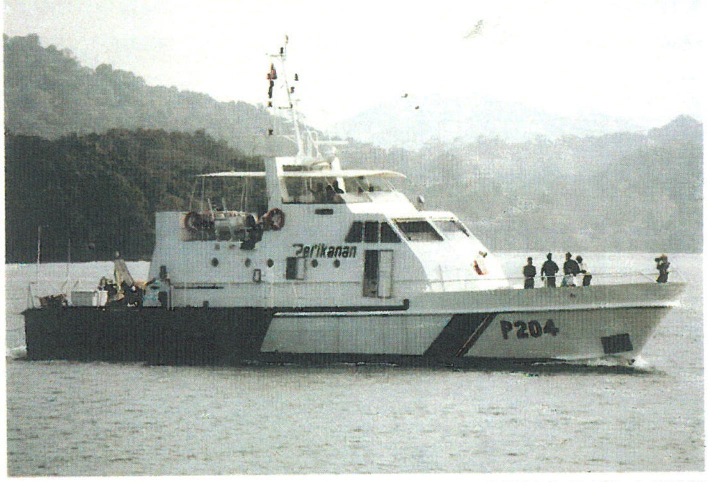
JERAI *10/2003*, Hartmut Ehlers* / 0567885

FISHERIES DEPARTMENT

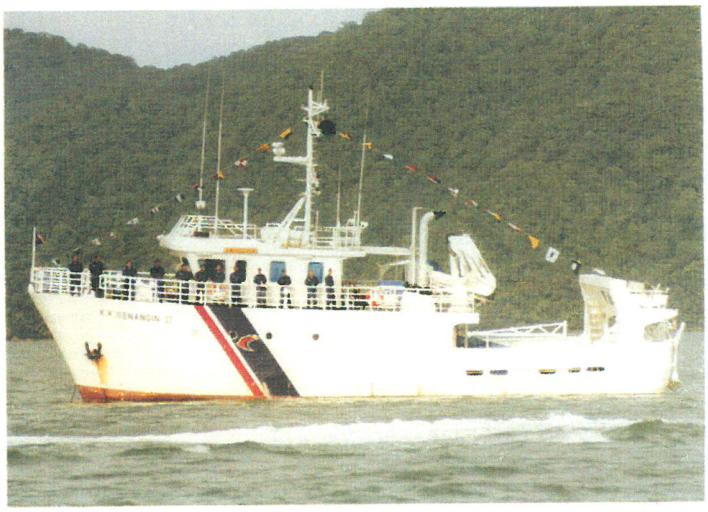
Notes: Patrol craft have distinctive thick blue and thin red diagonal bands on the hull and have been mistaken for a Coast Guard. All have P numbers. There is also a research vessel *K K Senangin II*.



PL 65 *12/1999, Sattler/Steele* / 0081229



P 204 *12/1999, Sattler/Steele* / 0081228



K K SENANGIN II *9/2003*, Hartmut Ehlers* / 0567880

Maldives

Country Overview

Formerly a British Protectorate, The Maldives gained independence in 1965 and a republic was established in 1968. Situated in the northern Indian Ocean, southwest of the southern tip of India, the country comprises a 468 n mile long chain of nearly 2,000 small coral islands that are grouped together into clusters of atolls. The capital and principal commercial centre is Malé and other populous atolls include Suvadiva and Tiladummati. An archipelagic state, territorial waters (12 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has been claimed although the limits have only been partly defined by boundary agreements.

Headquarters Appointments

Chief of Coast Guard:
Colonel Moosa Ali Jaleel

Bases

Malé

Personnel

2004: 400

COAST GUARD

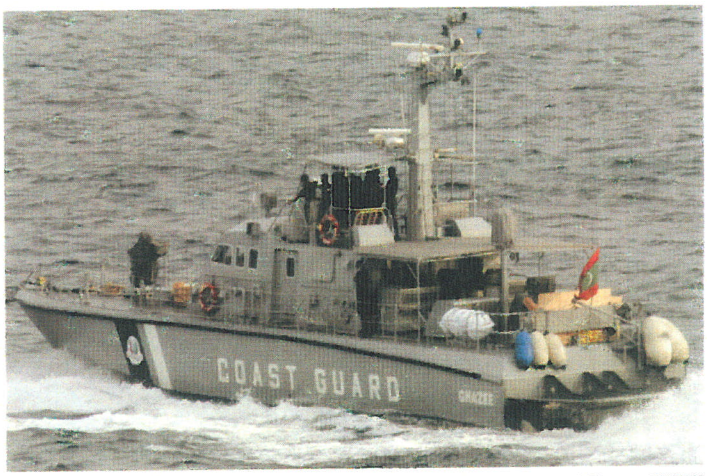
Notes: (1) All pennant numbers add up to seven.
(2) Two LSLs were ordered from Colombo Dockyard in March 1996. One was completed in January 2000. Displacing 33 tons, it is capable of 20 kt. Delivery of the second craft has not been confirmed.
(3) The ex-UK patrol craft *Kingfisher* was acquired by a civilian company in early 1997. It is painted white and is used as a survey ship.
(4) There are also four RIBs in service.

2 ISKANDHAR CLASS (PB)

ISKANDHAR
GHAZEE

Displacement, tons: 58 full load
Dimensions, feet (metres): 80.1 × 19 × 4.3 *(24.4 × 5.8 × 1.3)*
Main machinery: 2 Paxman diesels; 8,506 hp(m) *(6.26 MW)*; 2 shafts
Speed, knots: 30
Complement: 18
Guns: 2—12.7 mm MGs.
Radars: Surface search: I-band.

Comment: Ordered from Colombo Dockyard in 1997. First one delivered in 1999 and second reported delivered in 2002. ***UPDATED***



GHAZEE *7/2003*, A Sharma* / 0561538

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4 TRACKER II CLASS (PB)

KAANI 133 (ex-11) **KUREDHI** 142 (ex-12) **MIDHILI** 151 (ex-13) **NIROLHU** 106 (ex-14)

Displacement, tons: 38 full load
Dimensions, feet (metres): 65.6 × 17.1 × 4.9 *(20 × 5.2 × 1.5)*
Main machinery: 2 Detroit 12V-71TA diesels; 840 hp *(627 kW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 450 at 20 kt
Complement: 10
Guns: 1—12.7 mm MG. 1—7.62 mm MG.
Radars: Surface search: Kroden; I-band.

Comment: First one ordered June 1985 from Fairey Marinteknik and commissioned in April 1987. Three more acquired July 1987 ex-UK Customs craft. GRP hulls. Seven days normal endurance. Used for fishery protection and EEZ patrols.

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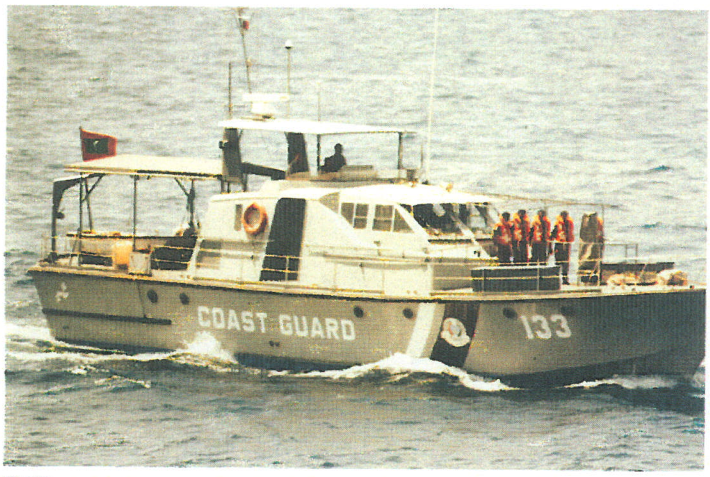

KAANI *6/1996* / 0081230

1 CHEVERTON CLASS (PB)

BUREVI 115 (ex-7)

Displacement, tons: 24 full load
Dimensions, feet (metres): 55.8 × 14.8 × 3.9 *(17 × 4.5 × 1.2)*
Main machinery: 2 Detroit 8V-71TI diesels; 850 hp *(634 kW)* sustained; 2 shafts
Speed, knots: 22. **Range, miles:** 590 at 18 kt
Complement: 10
Guns: 1—12.7 mm MG. 1—7.62 mm MG.
Radars: Surface search: Kroden; I-band.

Comment: GRP hull and aluminium superstructure. Originally built for Kiribati and subsequently sold to Maldives in 1984. Has a GRP hull.

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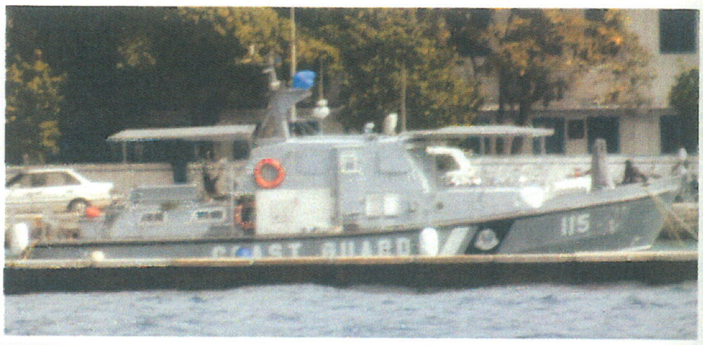

BUREVI *7/2003*, A Sharma* / 0561537

1 DAGGER CLASS (PB)

FUNA 124

Displacement, tons: 20 full load
Dimensions, feet (metres): 36.8 × 11.2 × 5 *(11.2 × 3.4 × 1.2)*
Main machinery: 2 Sabre diesels; 660 hp *(492 kW)*; 2 shafts
Speed, knots: 35
Complement: 6
Guns: 2—7.62 mm MGs.
Radars: Surface search: Furuno; I-band.

Comment: Built by Fairey Marine at Cowes, Isle of Wight and delivered in 1982.

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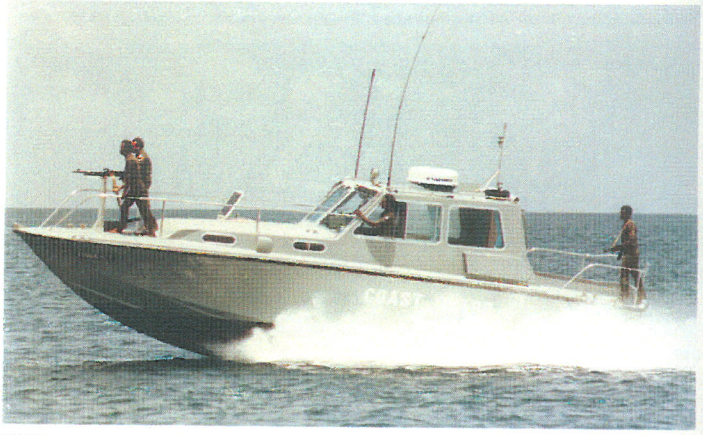
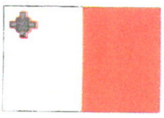


FUNA *6/1993, Maldives CG* / 0081232



Malta

Country Overview

Formerly a British colony, the Republic of Malta gained independence in 1964. Situated 45 n miles south of Sicily, the country comprises the islands of Malta (95 square miles), Gozo (26 square miles), Comino, Kemmunett, and Filfla. It has a 76 n mile coastline with the Mediterranean Sea. The capital, largest town and principal port is Valletta. Territorial seas (12 n miles) are claimed. A fishery zone of 25 n miles is also claimed.

Headquarters Appointments

Officer Commanding Maritime Squadron:
Major Martin Cauchi Inglott

Personnel

2004: 200 (9 officers)

General

A coastal patrol force of small craft was formed in 1971. It is manned by the 2nd Regiment of the Armed Forces of Malta and primarily employed as a Coast Guard.

PATROL FORCES

1 MARINE PROTECTOR CLASS (PB)

P 51

Displacement, tons: 91 full load
Dimensions, feet (metres): 86.9 × 19 × 5.2 *(26.5 × 5.8 × 1.6)*
Main machinery: 2 MTU 8V 396 TE94 diesels; 2,680 hp(m) *(1.97 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 900 at 8 kt
Complement: 10 (1 officer)
Radars: Navigation: I-band.

Comment: Ordered on 30 July 2001 and delivered on 25 October 2002. Built by Bollinger Shipyards as WPB 87351 for the US Coast Guard and brought by the Maltese government with US aid money contributing to the cost. The vessels are based on the hull of the Damen Stan Patrol 2600 in service with the Hong Kong police. Steel hull with GRP superstructure. A stern ramp is used for launching a 5.5 m RIB. Option for second craft not taken up. Painted grey.

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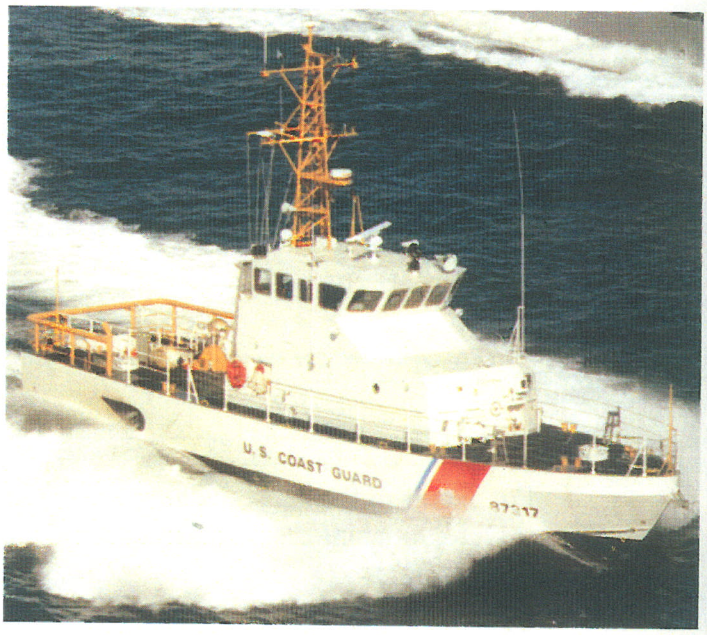

MARINE PROTECTOR CLASS (USCG colours)
1/2000, Bollinger / 0084206

2 BREMSE CLASS (INSHORE PATROL CRAFT) (PBI)

P 32 (ex-*G 33/GS 20*) **P 33** (ex-*G 22/GS 22*)

Displacement, tons: 42 full load
Dimensions, feet (metres): 74.1 × 15.4 × 3.6 *(22.6 × 4.7 × 1.1)*
Main machinery: 2 DM 6VD 18/5 AL-1 diesels; 1,020 hp(m) *(750 kW)*; 2 shafts
Speed, knots: 14
Complement: 6
Guns: 1—12.7 mm MG.
Radars: Surface search: Racal 1290A; I-band.

Comment: Built in 1971-72 for the ex-GDR GBK. Transferred from Germany in mid-1992. Others of the class acquired by Tunisia. Main machinery to be replaced by Iveco engines.

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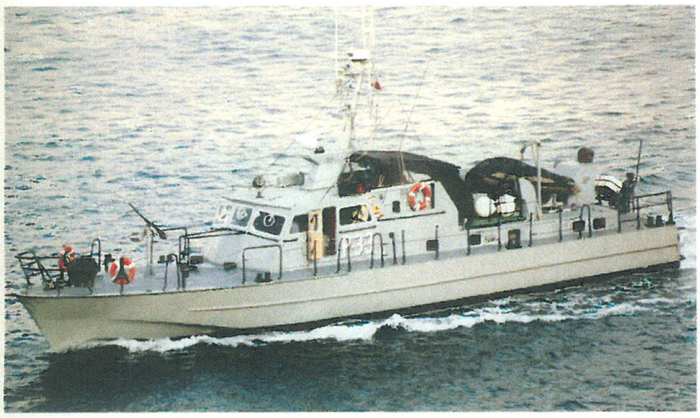

P 33 *11/2000, Lawrence Dalli* / 0114529

3 KONDOR I CLASS (COASTAL PATROL CRAFT) (PBO)

P 29 (ex-*Boltenhagen* BG 31) **P 30** (ex-*Ückermünde* G 411/GS 01)
P 31 (ex-*Pasewalk* G 423/GS 05)

Displacement, tons: 377 full load
Dimensions, feet (metres): 170.3 × 23.3 × 7.2 *(51.9 × 7.1 × 2.2)*
Main machinery: 2 Russki/Kolomna Type 40DM diesels; 4,408 hp(m) *(3.24 MW)* sustained; 2 shafts; cp props
Speed, knots: 21. **Range, miles:** 1,800 at 15 kt
Complement: 25 (2 officers)
Guns: 4—14.5 mm ZPU-4 (quad) MGs.
Radars: Surface search: Racal Bridgemaster 250/360; I-band.

Comment: *P 30* and *P 31* built by Peenewerft, Wolgast and commissioned 1 July 1969 and 18 October 1969 respectively. Transferred from Germany with armament and sonar removed in July 1992. A quadruple 14.5 mm gun fitted in Malta. Third of class *P 29* transferred from Germany on 24 July 1997 and fitted with 14.5 mm gun in mid-1999. A fourth planned for 1998 was cancelled. Others of the class acquired by Tunisia, Latvia, Uruguay and Cape Verde.

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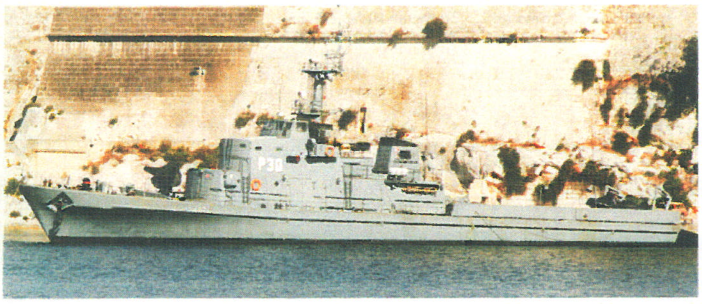

P 30 *6/2001, Hartmut Ehlers* / 0525000

2 SWIFT CLASS (HARBOUR PATROL CRAFT) (YP)

P 23 (ex-*C 6823*) **P 24** (ex-*C 6824*)

Displacement, tons: 22.5 full load
Dimensions, feet (metres): 50 × 13 × 4.9 *(15.6 × 4 × 1.5)*
Main machinery: 2 GM 12V-71 diesels; 680 hp *(507 kW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 400 at 18 kt
Complement: 6
Guns: 3—12.7 mm MG (1 twin, 1 single).
Radars: Surface search: Furuno 1040; I-band.

Comment: Built by Sewart Seacraft Ltd in 1967. Transferred from US in February 1971. Have an operational endurance of about 24 hours. Modernised in Malta in 1998/99, including the fitting of a twin 12.7 mm MG in both craft in early 2000.

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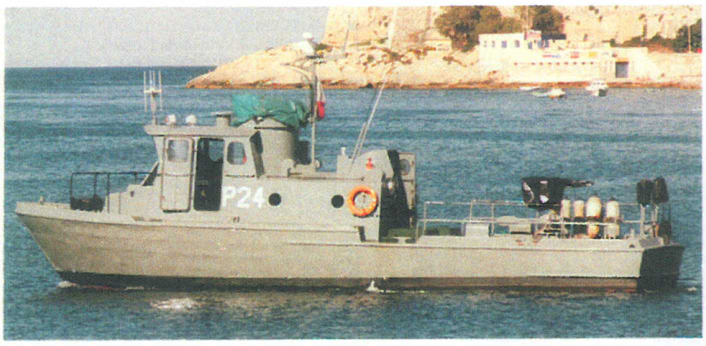

P 24 *6/2001, Hartmut Ehlers* / 0524999

2 SUPERVITTORIA 800 CLASS (SAR)

MELITA I **MELITA II**

Displacement, tons: 12.5 full load
Dimensions, feet (metres): 37.7 × 16.1 × 2.6 *(11.5 × 4.9 × 0.8)*
Main machinery: 2 Cummins 6CTA 8.3 DIAMONS; 840 hp(m) *(618 kW)*; 2 Kamewa FF310 waterjets
Speed, knots: 34. **Range, miles:** 160 at 34 kt
Complement: 4
Radars: Surface search: Raytheon Pathfinder SL 70; I-band.

Comment: Built in 1998 by Vittoria Naval Shipyard, Italy, for the Civil Protection Department of Malta. Transferred to the Armed Forces of Malta (AFM) in May 1999 for search and rescue duties. Although still the property of the Civil Protection Department, the Melita I and II are operated and maintained by the Maritime Squadron of the AFM.

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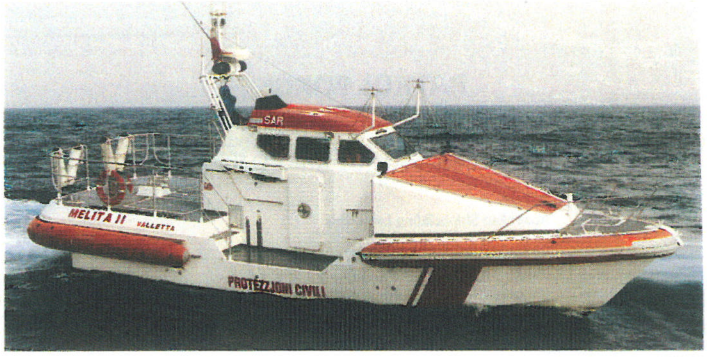

MELITA II *11/2000, Lawrence Dalli* / 0114532

1 LCVP

LC 1 (ex-*6524*)

Displacement, tons: 13.5 full load
Dimensions, feet (metres): 36 × 10.5 × 1.1 *(11 × 3.2 × 0.3)*
Main machinery: 1 Detroit 64 HN9 diesel; 225 hp *(168 kW)*; 1 shaft
Speed, knots: 10. **Range, miles:** 100 at 10 kt
Complement: 3
Military lift: 3.5 tons or 36 troops

Comment: Built by Gulfstream Co, US in 1965 and acquired in January 1987.

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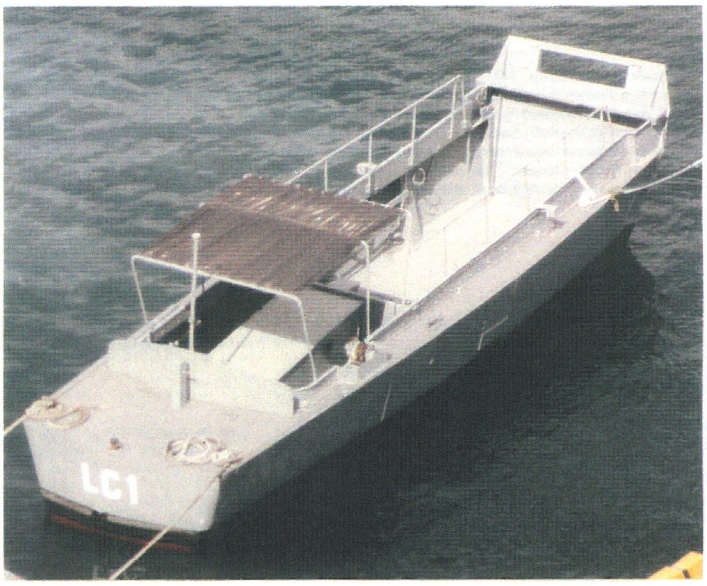

LC 1 *6/2001, van Ginderen Collection* / 0524998

LAND-BASED MARITIME AIRCRAFT

Notes: The Armed Forces of Malta operate two Britten-Norman BN-2B maritime patrol aircraft, five BAe Bulldog T. Mk 1 observation aircraft, one AB-206 JetRanger, two Nardi-MD NH 500HM, five SA.316B/D Alouette III and two AB-47G-2 helicopters.

NH 500 *4/2002*, Adolfo Ortigueira Gil* / 0568875

Marshall Islands

Country Overview

The Republic of the Marshall Islands was a US-administered UN Trust territory from 1947 before becoming a self-governing republic in 1979. In 1986, a Compact of Free Association, delegating to the US the responsibility for defence and foreign affairs, came into effect. The country consists of some 1,200 atolls and reefs in the central Pacific. There are two main island groups: the Ratak and Ralik chains. Majuro is the capital island. Kwajalein is the largest atoll and is leased as a US missile test range. Bikini and Enewetak are former US nuclear test sites. An archipelagic state, territorial seas (12 n miles) are claimed. An Exclusive Economic Zone (EEZ) (200 n miles) is also claimed but limits have not been fully defined.

Headquarters Appointments

Chief of Surveillance:
Major Thomas Heine
Maritime Surveillance Adviser:
Lieutenant Commander P McCarthy, RAN

Personnel

2004: 30

Bases

Majuro

PATROL FORCES

1 PACIFIC CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
LOMOR	03	Australian Shipbuilding Industries	29 June 1991

Displacement, tons: 162 full load
Dimensions, feet (metres): 103.3 × 26.6 × 6.9 *(31.5 × 8.1 × 2.1)*
Main machinery: 2 Caterpillar 3516TA diesels; 4,400 hp *(3.3 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 2,500 at 12 kt
Complement: 17 (3 officers)
Guns: 1—12.7 mm MG.
Radars: Surface search: Furuno 8111; I-band.

Comment: The 14th craft to be built in this series for a number of Pacific Island coast guards. Ordered in 1989. Following the decision by the Australian government to extend the Pacific Patrol Boat project to a 30-year life for each boat, *Lomor* will undergo a life-extension refit in 2008 having undergone a half-life refit in 1999.

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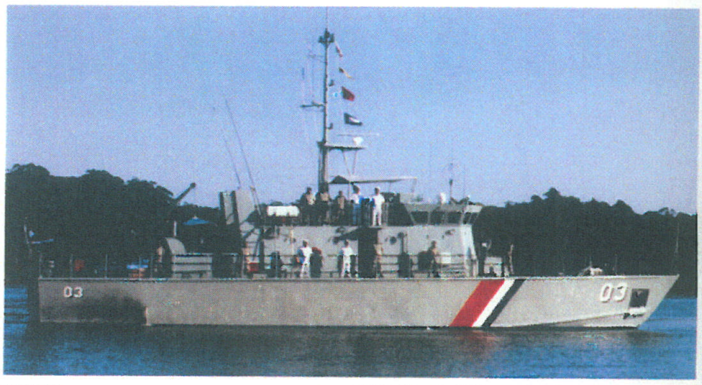

LOMOR *2001, Marshall Islands Sea Patrol Force* / 0109942

Mauritania

MARINE MAURITANIENNE

Country Overview

A former French colony, The Islamic Republic of Mauritania gained full independence in 1960. With an area of 397,955 square miles, it is situated in northwestern Africa and has borders to the north with western Sahara and Algeria, to the east with Mali and to the south with Senegal. It has a 405 n mile coastline with the Atlantic Ocean. The capital and largest city is Nouakchott while Nouadhibou is the principal port. Territorial seas (12 n miles) are claimed but while it has claimed a 200 n mile Exclusive Economic Zone (EEZ), its limits have not been defined by boundary agreements.

Headquarters Appointments

Commander of Navy:
Colonel A Ould Yahya

Personnel

(a) 2004: 500 (40 officers) plus 200 marines
(b) Voluntary service

Bases

Port Etienne, Nouadhibou
Port Friendship, Nouakchott

PATROL FORCES

Notes: (1) An 18 m patrol vessel for Fishery Protection Duties was donated by the European Union (EU) in 2000.
(2) A Chinese 'Huangpu' class patrol boat *Linan El Hadrami* is reported to have been acquired in 2002.

1 OPV 54 CLASS (PBO)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ABOUBEKR BEN AMER	P 541	Leroux & Lotz, Lorient	17 Dec 1993	7 Apr 1994

Displacement, tons: 374 full load
Dimensions, feet (metres): 177.2 × 32.8 × 9.2 *(54 × 10 × 2.8)*
Main machinery: 2 MTU 16V 396 TE94 diesels; 5,712 hp(m) *(4.2 MW)* sustained; 2 auxiliary motors; 250 hp(m) *(184 kW)*; 2 shafts; cp props
Speed, knots: 23 (8 on motors). **Range, miles:** 4,500 at 12 kt
Complement: 21 (3 officers)
Guns: 2—12.7 mm MGs.
Radars: Surface search: Racal Decca Bridgemaster 250; I-band.

Comment: Ordered in September 1992. This is the prototype to a Serter design of three similar craft built for the French Navy. Stern ramp for a 30 kt RIB. Option on a second of class not taken up. Refitted at Lorient 2001.

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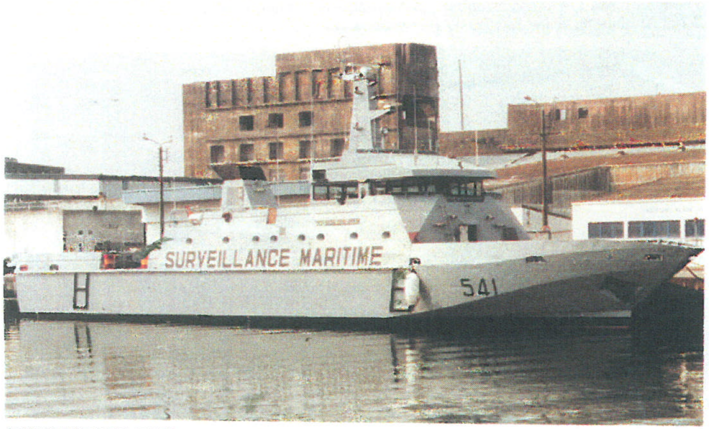


ABOUBEKR BEN AMER *7/2001, Peron/Marsan* / 0137787

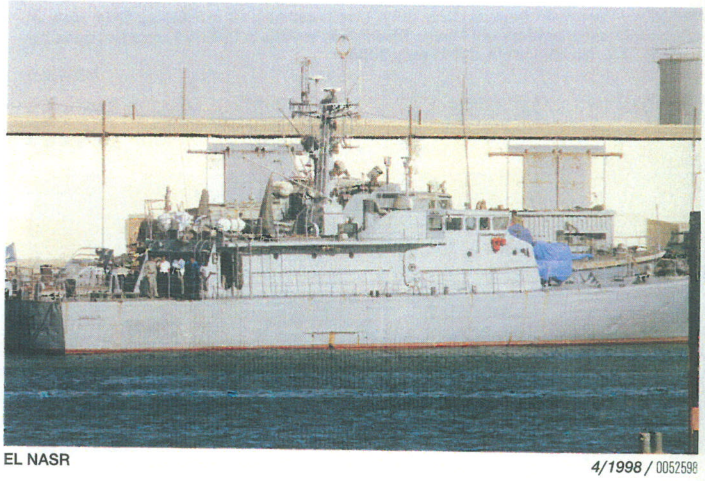
1 PATRA CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
EL NASR (ex-*Le Dix Juillet*, ex-*Rapière*)	P 411	Auroux, Arcachon	14 May 1982

Displacement, tons: 147.5 full load
Dimensions, feet (metres): 132.5 × 19.4 × 5.2 *(40.4 × 5.9 × 1.6)*
Main machinery: 2 Wärtsilä UD 33 V12 diesels; 4,340 hp(m) *(3.2 MW)* sustained; 2 shafts
Speed, knots: 26.3. **Range, miles:** 1,750 at 10 kt
Complement: 20 (2 officers)
Guns: 1 Bofors 40 mm/60. 1 Oerlikon 20 mm. 2—12.7 mm MGs.
Radars: Surface search: Racal/Decca 1226; I-band.

Comment: Originally built as a private venture by Auroux. Carried out trials with French crew as *Rapière*. Laid down 15 February 1980, launched 3 June 1981, commissioned for trials 1 November 1981. Transferred to Mauritania in 1982. Re-engined in 1993-94.

UPDATED



EL NASR *4/1998* / 0052598

1 LARGE PATROL CRAFT (PBO)

Name	*No*	*Builders*	*Commissioned*
VOUM-LEGLEITA (ex-*Poseidon*)	B 551 (ex-A 12)	Bazán	8 Aug 1964

Displacement, tons: 1,069 full load
Dimensions, feet (metres): 183.5 × 32.8 × 13.1 *(55.9 × 10 × 4)*
Main machinery: 2 Sulzer diesels; 3,200 hp *(2.53 MW)*; 1 shaft; cp prop
Speed, knots: 15. **Range, miles:** 4,640 at 14 kt
Complement: 60
Guns: 2 Oerlikon 20 mm.
Radars: Navigation: 2 Decca TM 626; I-band.

Comment: Ocean going tug transferred from Spain in January 2000, about a year later than planned. Used primarily as an OPV and for fishery protection.
UPDATED

VOUM-LEGLEITA *1/2000, Diego Quevedo* / 0081240

1 ARGUIN CLASS (PBO)

Name	*Builders*	*Commissioned*
ARGUIN	Fassmer Werft, Berne/Motzen, Germany	17 July 2000

Measurement, tons: 1,000 dwt
Dimensions, feet (metres): 178.8 × 35.8 × 14.8 *(54.5 × 10.9 × 4.5)*
Main machinery: 2 MaK 6M20 diesels; 2,735 hp *(2.04 MW)*; 1 shaft; cp prop
Speed, knots: 16.5. **Range, miles:** 15,000 at 12 kt
Complement: 13

Comment: Ordered in 1998. Hull construction at Yantar, Kaliningrad. Steel hull and superstructure. Equipped with interception craft on centreline ramp in mother-daughter configuration.
NEW ENTRY

4 MANDOVI CLASS (INSHORE PATROL CRAFT) (PB)

Displacement, tons: 15 full load
Dimensions, feet (metres): 49.2 × 11.8 × 2.6 *(15 × 3.6 × 0.8)*
Main machinery: 2 Deutz MWM TBD232V12 Marine diesels; 750 hp(m) *(551 kW)*; 2 Hamilton water-jets
Speed, knots: 24. **Range, miles:** 250 at 14 kt
Complement: 8
Guns: 1—7.62 mm MG.
Radars: Navigation: Furuno FR 8030; I-band.

Comment: Built by Garden Reach, Calcutta and delivered from India in 1990. Same type acquired by Mauritius. Some may not be operational.
UPDATED

LAND-BASED MARITIME AIRCRAFT

Notes: There are also two Cessna 337F.

Numbers/Type: 2 Piper Cheyenne II.
Operational speed: 283 kt *(524 km/h)*.
Service ceiling: 31,600 ft *(9,630 m)*.
Range: 1,510 n miles *(2,796 km)*.
Role/Weapon systems: Coastal surveillance and EEZ protection acquired 1981. Sensors: Bendix 1400 weather radar; cameras. Weapons: Unarmed.
VERIFIED

Mauritius

Country Overview

A former British colony, the Republic of Mauritius gained independence in 1968 and became a republic in 1995. Situated in the western Indian Ocean, east of Madagascar, it comprises the islands of Mauritius (720 square miles), Rodrigues (42 square miles), the Agalega islands to the north and the St Brandon Group (also known as the Cargados Carajos Shoals) to the northeast. The capital, largest town and principal port is Port Louis. Territorial seas (12 n miles) are claimed but, while it has declared a 200 n mile Exclusive Economic Zone (EEZ), the claim is complicated by disputes over the sovereignty of Tromelin Island (France) and Diego Garcia (UK).

Headquarters Appointments

Commandant Coast Guard:
M A Hampiholi

Bases

Port Louis (plus 21 manned CG stations)

Personnel

2004: 750 (including some Indian officers)

Maritime Aircraft

1 Dornier 228 (MPCG 01).
1 Britten-Norman BN-2-T Defender.

COAST GUARD

Notes: There are approximately 60 inshore craft (RHIBs, glass fibre boats and so on) in addition to those listed.

1 GUARDIAN CLASS (PSOH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
VIGILANT	21	Talcahuano Yard, Chile	6 Dec 1995	10 May 1996

Displacement, tons: 1,650 full load
Dimensions, feet (metres): 246.1 × 45.9 × 12.8 *(75 × 14 × 3.9)*
Main machinery: 4 Caterpillar 3516 diesels; 11,530 hp *(8.6 MW)*; 2 shafts; cp props; bow thruster; 671 hp *(500 kW)*
Speed, knots: 22. **Range, miles:** 6,500 at 19 kt
Complement: 57 (11 officers) plus 20 spare
Guns: 2 Bofors 40 mm/70 (1 twin). 2—12.7 mm MGs.
Radars: Surface search: Kelvin Hughes; I-band.
Helicopters: 1 light.

Comment: Contract signed with the Western Canada Marine Group in March 1994. Keel was laid in April 1994. All-steel construction. The ship can be operated by a crew of 18. Full helicopter facilities are included in the design which is based on a Canadian Fisheries vessel *Leonard J Cowley*. Not operational from 1998-2000 due to shaft problems.
VERIFIED

21
COAST GUARD

VIGILANT *2/2001, Sattler/Steele* / 0114366

1 SDB Mk 3 CLASS (PB)

GUARDIAN

Displacement, tons: 210 full load
Dimensions, feet (metres): 124 × 24.6 × 6.2 *(37.8 × 7.5 × 1.9)*
Main machinery: 2 MTU 16V 538 TB92 diesels; 6,820 hp(m) *(5 MW)* sustained; 2 shafts
Speed, knots: 30
Complement: 32
Guns: 2 Bofors 40 mm/60; 120 rds/min to 10 km *(5.5 n miles)*; weight of shell 0.89 kg.
Radars: Surface search: Bharat 1245; I-band.

Comment: Transferred from Indian Navy in 1993. Built by Garden Reach, Calcutta in 1984.
UPDATED

COAST GUARD

GUARDIAN *7/2003*, Arjun Sarup* / 0568319

2 ZHUK (TYPE 1400M) CLASS (PB)

RESCUER **RETRIEVER**

Displacement, tons: 39 full load
Dimensions, feet (metres): 78.7 × 16.4 × 3.9 *(24 × 5 × 1.2)*
Main machinery: 2 M 401B diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,100 at 15 kt
Complement: 14
Guns: 4—14.5 mm (2 twin) MGs.
Radars: Surface search: Spin Trough; I-band.

Comment: Acquired from the USSR on 3 December 1989.

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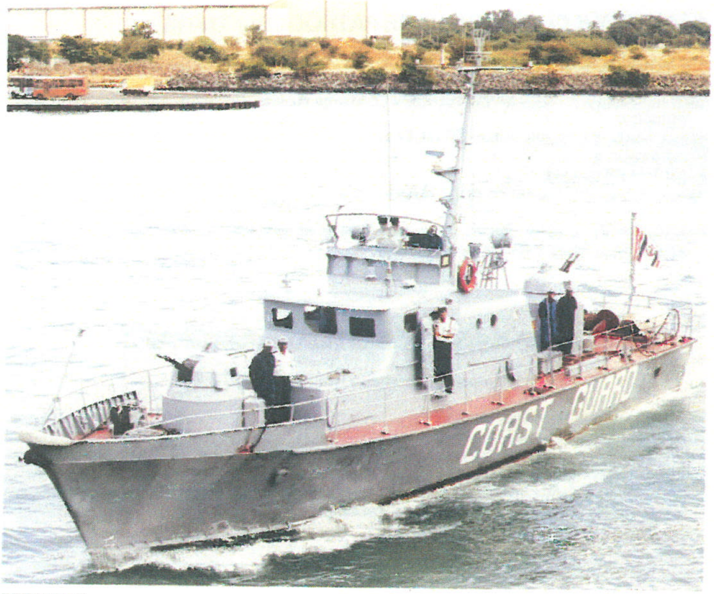


RETRIEVER *7/2003*, Arjun Sarup* / 0568318

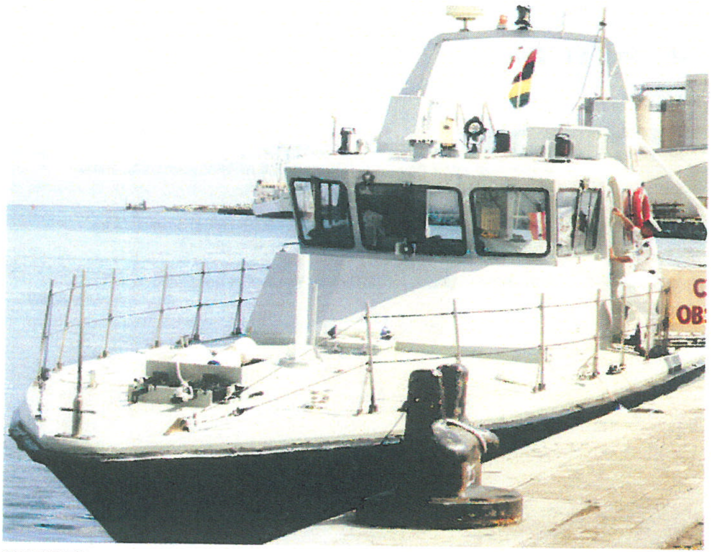
1 P-2000 CLASS (PB)

OBSERVER (ex-C 39)

Displacement, tons: 40 full load
Dimensions, feet (metres): 68.2 × 19 × 5.9 *(20.8 × 5.8 × 1.8)*
Main machinery: 2 Deutz MWM TBD234 V12 diesels; 1,646 hp(m) *(1.21 MW)* sustained; 1 Deutz MWM TBD234 V8 diesel; 550 hp(m) *(404 kW)* sustained; 3 Hamilton 402 waterjets
Speed, knots: 25. **Range, miles:** 600 at 15 kt
Complement: 8 (1 officer)
Guns: 1—7.62 mm MG.
Radars: Navigation: Furuno; I-band.

Comment: Leased from the Indian Coast Guard in 2001. Originally commissioned in 1997, one of ten ordered from Anderson Marine, Goa in September 1990 to a P-2000 design by Amgram, similar to 'Archer' class. GRP hull. Built at Goa.

NEW ENTRY



OBSERVER *4/2001*, Arjun Sarup* / 0568317

4 HEAVY DUTY BOATS (PBI)

HDB 01-04

Displacement, tons: 5
Dimensions, feet (metres): 29.25 × 11.5 × 1.5 *(8.9 × 3.5 × 0.45)*
Main machinery: 2 Johnson outboard motors; 400 hp
Speed, knots: 45. **Range, miles:** 300 at 35 kt
Complement: 4 (plus 4 passengers)

Comment: An initial order of four boats supplied by M/S Praga Marine, India in 2000. Option for six additional boats.

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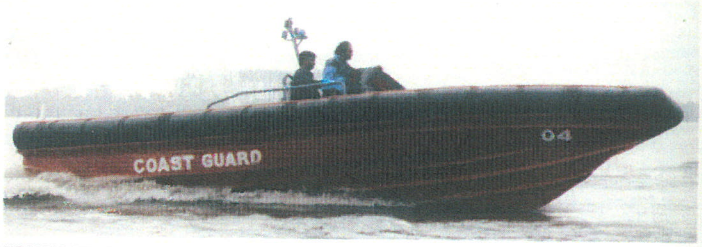


HEAVY DUTY BOAT *2000, Mauritius Coast Guard* / 0105127

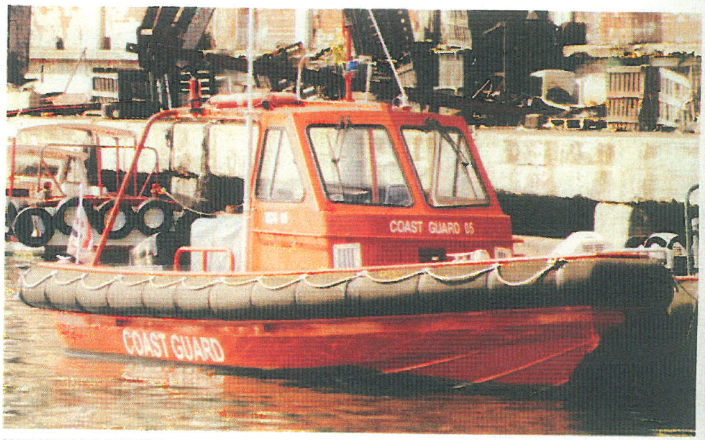
8 KAY MARINE HEAVY DUTY BOATS (PBI)

HDB 5-12

Displacement, tons: ?
Dimensions, feet (metres): 29.0 × 10.5 × 1.5 *(8.85 × 3.21 × 0.45)*
Main machinery: 2 Suzuki (1 twin) outboard motors; 450 hp
Speed, knots: 40
Complement: 8 + 10 passengers

Comment: Acquired from Kay Marine Malaysia in November 2002. Deep Vee monohull of aluminium construction.

NEW ENTRY



KAY MARINE HDB 05 *8/2003*, Arjun Sarup* / 0568316

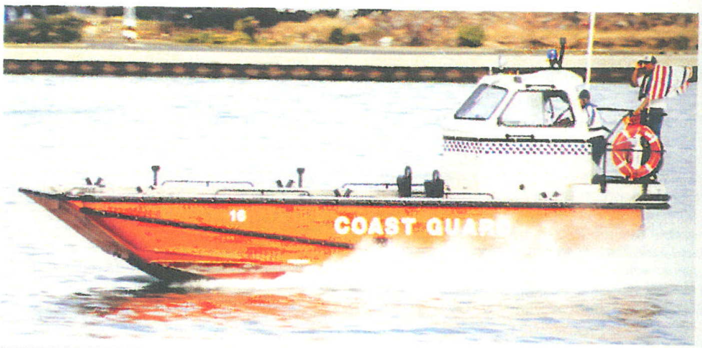
4 HALMATIC HEAVY DUTY BOATS (PBI)

HDB 13-16

Displacement, tons: 6
Dimensions, feet (metres): 30.2 × 10.2 × 3.3 *(9.2 × 3.1 × 1.0)*
Main machinery: 2 Yamaha V6 outboard motors; 400 hp
Speed, knots: 35

Comment: Acquired from Halmatic Ltd UK in June 2003.

NEW ENTRY



HALMATIC HDB 16 *7/2003*, Arjun Sarup* / 0568315

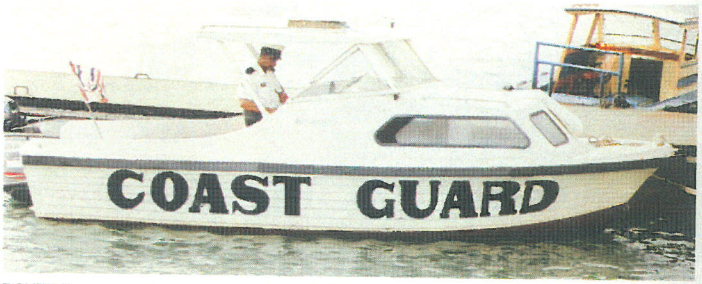
2 ROVER PATROL BOATS (PBI)

ROVER 1 **ROVER 2**

Displacement, tons: 3.5
Dimensions, feet (metres): 21.3 × 6.5 × 1.6 *(6.5 × 2.0 × 0.5)*
Main machinery: 1 Mariner outboard motor; 90 hp

Comment: Donated by Australia in 1988-89.

NEW ENTRY



ROVER 2 *4/2003*, Arjun Sarup* / 0568314

Mexico
MARINA NACIONAL

Country Overview

The United Mexican States is a federal republic in North America. A total land area of 756,066 square miles includes a number of offshore islands. Bordered to the north by the United States and to the south by Belize and Guatemala, it has a 1,382 n mile coastline with the Caribbean and Gulf of Mexico and 3,656 n mile coastline with the Pacific Ocean. The capital and largest city is Mexico City while the principal ports are Acapulco (Pacific) and Veracruz (Gulf of Mexico). Territorial seas (12 n miles) are claimed. A 200 n mile EEZ has also been claimed but the limits have not been fully defined by boundary agreements.

Headquarters Appointments

Secretary of the Navy:
Admiral Marco Antonio Peyrot Gonzalez
Under-Secretary of the Navy:
Admiral Armando Sanchez Moreno
Inspector General of the Navy:
Admiral David José Real Rodriguez
Chief of the Naval Staff:
Vice Admiral Alberto Castro Rosas

Flag Officers

Commander in Chief, Gulf and Caribbean:
Admiral Daniel Zamora Contreras
Commander in Chief, Pacific:
Admiral Casimiro Armando Martinez Pretelin

Personnel

(a) 2004: 46,972 officers and men (including 946 Naval Air Force and 11,385 Marines)
(b) Military service

Naval Bases and Commands

The Naval Command is split between the Pacific and Gulf areas each with a Commander-in-Chief with HQs at Manzanillo and Colima (Pacific) and Tuxpan and Veracruz (Gulf). Each area has three naval Regions which are further subdivided into Zones (9), Sectors (11) and Subsectors (7). There is a Central Naval Region that has an HQ in Mexico City.

Gulf Area
North
- First Naval Region (HQ Tampico, Tamaulipas).
  - I Naval Zone (HQ Ciudad Madero, Tamaulipas).
    - Naval Subsector (Matamoros, Tamaulipas).
  - III Naval Zone (HQ Veracruz, Veracruz).
    - Naval Sector (HQ Tuxpan, Veracruz).
    - Naval Sector (HQ Coatzacoalcos, Veracruz).
- Third Naval Region (HQ Lerma, Campeche).
  - V Naval Zone (HQ Carmen, Campeche).
    - Naval Sector (HQ Lerma, Campeche).
      - Naval Subsector (HQ Dos Bocas, Tabasco).
      - Naval Subsector (HQ Frontera, Tabasco).
- Fifth Naval Region (HQ Yukalpeten, Yucatan).
  - VII Naval Zone (HQ Isla Mujeres, Quintana Roo).
    - Naval Sector (HQ Chetumal, Quintana Roo).
    - Naval Sector (HQ Yukalpeten, Yucatan).
      - Naval Subsector (HQ Isla Cozumel, Quintana Roo).

Pacific Area
- Second Naval Region (HQ Mazatlan, Sinaloa).
  - II Naval Zone (HQ Ensenada, Baja California).
  - IV Naval Zone (HQ Guaymas, Sonora).
    - Naval Sector (HQ Mazatlan, Sinaloa).
    - Naval Sector (HQ Topolobampo, Sinaloa).
    - Naval Sector (HQ La Paz, Baja California Sur).
      - Naval Subsector (HQ Puerto Cortes, Baja California Sur).
      - Naval Subsector (HQ Puerto Peñasco, Sonora).
- Fourth Naval Region (HQ Manzanillo, Colima).
  - VI Naval Zone (HQ Lazaro Cardenas, Michoacán).
    - Naval Sector (HQ Puerto Vallarta, Jalisco).
    - Naval Sector (HQ Manzanillo, Colima).
      - Naval Subsector (HQ Isla Socorro, Colima).
  - VIII Naval Zone (HQ Acapulco, Guerrero).
  - X Naval Zone (HQ Salina Cruz, Oaxaca).
    - Naval Sector (HQ Puerto Madero, Chiapas).
- Central Naval Region (HQ Mexico, DF).

Naval Air Force

Six naval air bases at Mexico City, Veracruz, Campeche, Chetumal, Tapachula and La Paz; there are two Naval Air Stations at Guaymas and Tampico.

Marine Forces

There are two Amphibious Reaction Forces, each one based in Manzanillo and Tuxpan; one Parachute Battalion, two Infantry Battalions and one Presidential Guards Battalion in Mexico City.

Strength of the Fleet

Type	*Active*	*Building*
Destroyers	2	–
Frigates	6	–
Gunships	18	2
Large Patrol Craft	30	–
Coast Guard	17	–
Coastal and River Patrol Craft	60	12
Survey Ships	7	–
Support Ships	12	–
Tankers	2	–
Sail Training Ship	2	–

Names and Pennant Numbers

Many of the ship names and pennant numbers were changed in early 1994 and again in 2001. Destroyers and frigates are named after Aztec emperors and forerunners of the Independence War (1810-1825). Gunboats are named after naval and military heroes.

DELETIONS

Destroyers

2001	*Cuitlahuac*
2002	*Quetzalcoatl*

Frigates

2001	*Miguel Hidalgo, Vincente Guerrero, José María Morelos y Pavón*

Patrol Forces

2001	*Guanajuato, General Manuel Gonzalez, General Manuel E Rincon, Cadete Fernando Montes de Oca, General Ignacio Zaragoza, Cadete Vicente Suarez, Kana, Mandinga, Lago de Chapala, Lago de Janitzio, Teniente Juan de la Barrera, General Felipe Xicotencatl*
2003	*Andrés Quintana Roo, Manel Ramos Arizpe, José Maria Izazaga, Juan Bautista Morales, José Maria Mata, Pastor Rollaix, Luis Manue Rojas, Ignacio Zaagoza, Campeche, Margarita Maza de Juarez*

Auxiliaries

2001	*Potrero del Llano, Durango, Rio Tehuantepec, Rio Blanco* (ex-*Seacon*), *Quezalcoatl, Huitilopochtli*
2002	*Iguala*

PENNANT LIST

Destroyers

D 102	Netzahualcoyotl
D 111	Comodoro Manuel Azueta

Frigates

F 201	Nicolas Bravo
F 202	Hermengildo Galeana
F 211	Ignacio Allende
F 212	Mariano Abasolo
F 213	Guadaloupe Victoria
F 214	Mina

Patrol Forces

PC 206	Ignacio López Rayón
PC 207	Manuel Crescencio Rejon
PC 208	Juan Antomio de la Fuente
PC 209	Leon Guzman
PC 210	Ignacio Ramirez
PC 211	Ignacio Mariscal
PC 212	Heriberto Jara Corona
PC 214	Colima
PC 215	José Joaquin Fernandez de Lizardi
PC 216	Francisco J Mugica
PC 218	José Maria del Castillo Velasco
PC 220	José Natividad Macias
PC 223	Tamaulipas
PC 224	Yucatan
PC 225	Tabasco
PC 226	Cochimie
PC 228	Puebla
PC 230	Leon Vicario
PC 231	Josefa Ortiz de Dominguez
PC 241	Démocrata
PC 271	Cabo Corrientes
PC 272	Cabo Corzo
PC 273	Cabo Catoche
PC 281	Punta Morro
PC 282	Punta Mastun
PI 1101	Polaris
PI 1102	Sirius
PI 1103	Capella
PI 1104	Canopus
PI 1105	Vega
PI 1106	Achernar
PI 1107	Rigel
PI 1108	Arcturus
PI 1109	Alpheratz
PI 1110	Procyon
PI 1111	Avior
PI 1112	Deneb
PI 1113	Formalhaut
PI 1114	Pollux
PI 1115	Regulus
PI 1116	Acrux
PI 1117	Spica
PI 1118	Hadar
PI 1119	Shaula
PI 1120	Mirfak
PI 1121	Ankaa
PI 1122	Bellatrix
PI 1123	Elnath
PI 1124	Alnilam
PI 1125	Peacock
PI 1126	Betelgeuse
PI 1127	Adhara
PI 1128	Alioth
PI 1129	Rasalhague
PI 1130	Nunki
PI 1131	Hamal
PI 1132	Suhail
PI 1133	Dubhe
PI 1134	Denebola
PI 1135	Alkaid
PI 1136	Alphecca
PI 1137	Eltanin
PI 1138	Kochab
PI 1139	Enif
PI 1140	Schedar
PI 1141	Markab
PI 1142	Megrez
PI 1143	Mizar
PI 1144	Phekda
PI 1201	Isla Coronado
PI 1202	Isla Lobos
PI 1203	Isla Guadalupe
PI 1204	Isla Cozumel
PI 1301	Acuario (bldg)
PI 1302	Aguila (bldg)
PI 1303	Aries (bldg)
PI 1304	Auriga (bldg)
PI 1305	Cancer (bldg)
PI 1306	Capricorno (bldg)
PI 1307	Centauro (bldg)
PI 1308	Geminis (bldg)
PO 101	Leandro Valle
PO 102	Juan de la Barrera
PO 103	Mariano Escobedo
PO 104	Manuel Doblado
PO 105	Sebastian Lerdo de Tejada
PO 106	Santos Degollado
PO 107	Ignacio de la Llave
PO 108	Juan Alvares
PO 109	Manuel Gutierrez Zamora
PO 110	Valentin Gomez Farias
PO 111	Ignacio Manuel Altamirano
PO 112	Francisco Zarco
PO 113	Ignacio Vallarta
PO 114	Jesus Gonzalez Ortega
PO 115	Felipe Xicoténcatl
PO 116	Juan Aldama
PO 117	Mariano Matamoros
PO 121	Teniente José Azueta
PO 123	Capitán de Fragata Pedro Sáinz de Baranda
PO 124	Comodoro Carlos Castillo Bretón
PO 125	Vicealmirante Othón P Blanco
PO 126	Contralmirante Angel Ortiz Monasterio
PO 131	Capitán de Navio Sebastian José Holzinger
PO 132	Capitán de Navio Blas Godinez
PO 133	Brigadier José Mariá de la Vega
PO 134	General Felipe B Berriozábal
PO 141	Justo Sierra Mendez
PO 142	Benito Juarez
PO 143	Guillermo Prieto
PO 144	Matias Romero
PO 151	Durango
PO 152	Sonora
PO 153	Guanajuato
PO 154	Veracruz
PO 161	Oaxaca (bldg)
PO 162	Baja California (bldg)
PR 291	Laguna de Tamiahua
PR 292	Laguna de Lagartos
PR 293	Laguna de Cuyutlan
PR 294	Laguna de Alvarado
PR 295	Laguna de Catemaco
PR 302	Arrecife Sisal
PR 303	Arrecife Tanhuijo
PR 304	Arrecife Cabezo
PR 305	Arrecife Santiaguillo
PR 306	Arrecife Palancar
PR 307	Arrecife la Galleguilla
PR 308	Arrecife la Blanquilla
PR 309	Arrecife Anegada de Adentro
PR 310	Arrecife Rizo
PR 311	Arrecife Pajaros
PR 312	Arrecife de Emmedio
PR 313	Arrecife de Hornos
PR 321	Lago de Patzcuaro
PR 322	Lago de Chapala

Survey and Research Ships

BI 01	Alejandro de Humbolt
BI 02	Onjuku
BI 03	Altair
BI 04	Antares
BI 05	Rio Suchiate
BI 06	Rio Ondo
BI 08	Alacran

Auxiliaries

A 401	Rio Panuco
A 402	Manzanillo
A 403	Vincente Guerrero
A 411	Rio Papaloapan
A 412	Usumacinta
AMP 01	Huasteco
AMP 02	Zapoteco
ARE 01	Otomi
ARE 02	Yaqui
ARE 03	Seri
ARE 04	Cora
ARE 05	Iztaccihuatl
ARE 06	Popocateptl
ARE 07	Citlaltepl
ARE 08	Xinantecatl
ARE 09	Matlalcueye
ARE 10	Tlaloc
ATQ 01	Aguascalientes
ATQ 02	Tlaxcala
ATR 01	Maya
ATR 02	Progreso
ATR 03	Tarasco

Training Ships

BE 01	Cuauhtemoc
BE 02	Aldebaran
BE 03	Moctezumall

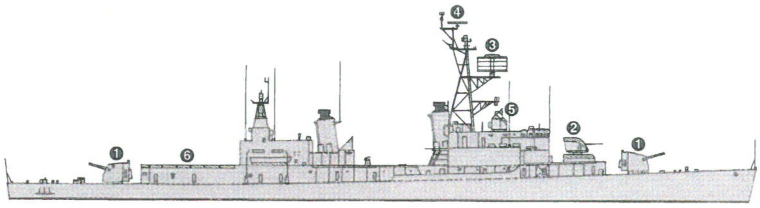
DESTROYERS

1 QUETZALCOATL (GEARING FRAM I) CLASS (DDH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
NETZAHUALCOYOTL (ex-*Steinaker* DD 863)	D 102 (ex-E 11, ex-E 04)	Bethlehem, Staten Island	1 Sep 1944	13 Feb 1945	26 May 1945

Displacement, tons: 3,030 standard; 3,690 full load
Dimensions, feet (metres): 390.2 × 41.9 × 15 *(118.7 × 12.5 × 4.6)*
Main machinery: 4 Babcock & Wilcox boilers; 600 psi *(43.3 kg/cm²)*; 850°F *(454°C)*; 2 GE turbines; 60,000 hp *(45 MW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 5,800 at 15 kt
Complement: 250

Guns: 4 USN 5 in *(127 mm)*/38 (2 twin) Mk 38 ①; 15 rds/min to 17 km *(9.3 n miles)* anti-surface; 11 km *(5.9 n miles)* anti-aircraft; weight of shell 25 kg.
1 Bofors 57 mm/70 Mk 2 ②; 220 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg.
Countermeasures: ESM: WLR-1; radar warning.
Weapons control: Mk 37 GFCS. Mk 112 TFCS.
Radars: Air search: Lockheed SPS-40; B-band (E 10).
Westinghouse SPS-29 ③; B/C-band (E 11).
Surface search: Kelvin Hughes 17/9 ④; I-band.
Navigation: Marconi LN66; I-band.
Fire control: Western Electric Mk 12/22 ⑤; I/J-band.



NETZAHUALCOYOTL *10/1996, van Ginderen Collection*

Helicopters: 1 MBB BO 105 CB ⑥.

Programmes: Transferred from US by sale 24 February 1982.
Modernisation: A Bofors 57 mm gun was mounted between the torpedo tubes in B gun position in 1993. ASROC, torpedo tubes and sonar removed in 1996, and the flight deck slightly extended. New topmast and search radar also fitted in 1996.

Structure: The devices on top of the funnel are to reduce IR signature.
Operational: Top speed much reduced from the original 32 kt. Helicopter seldom carried. Pennant number changed in 2001. Based at Ensenada.

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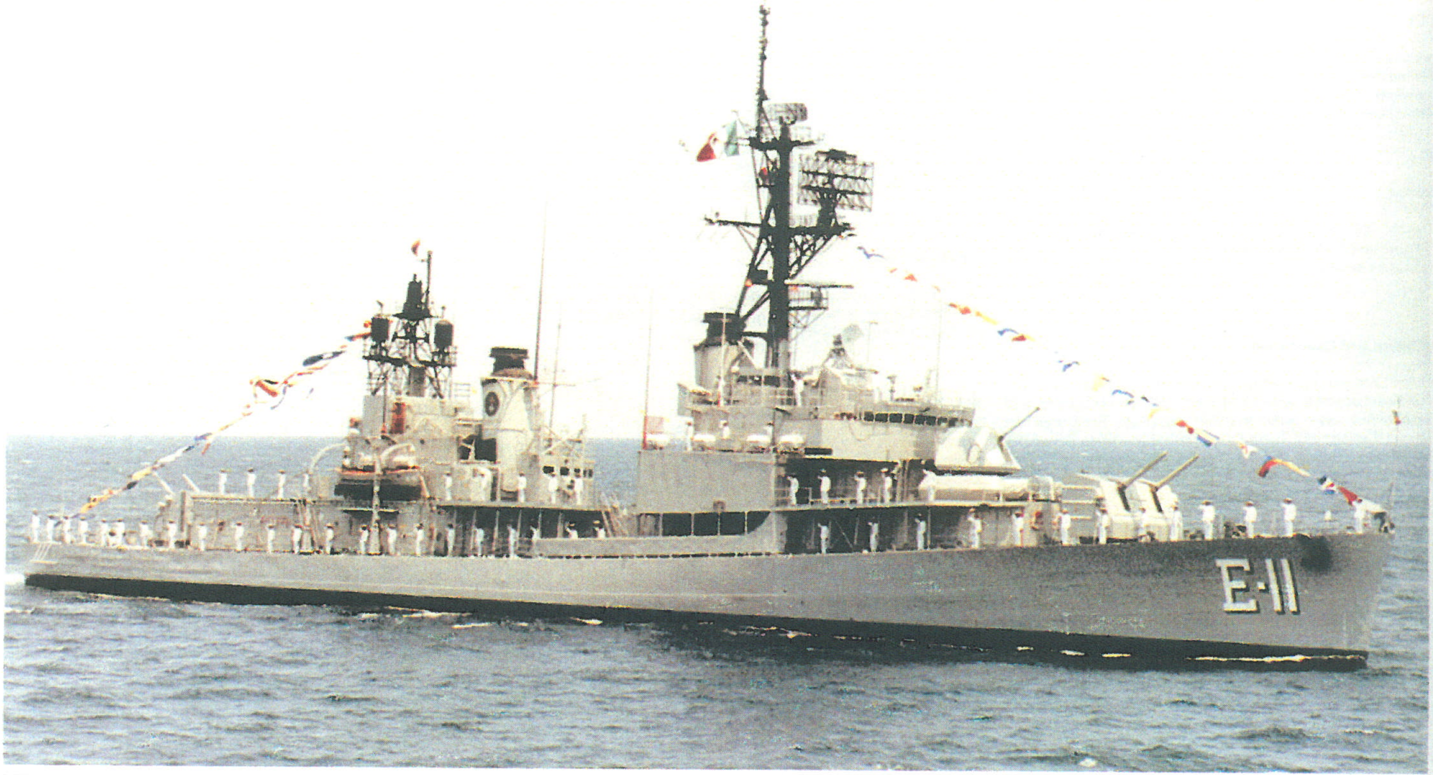

NETZAHUALCOYOTL (old number) *6/2001, Mexican Navy* / 0114677

FRIGATES

1 MANUEL AZUETA (EDSALL) CLASS (FF/AX)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
COMODORO MANUEL AZUETA (ex-*Hurst* DE 250)	D 111 (ex-E 30, ex-A 06)	Brown SB Co, Houston, TX	27 Jan 1943	14 Apr 1943	30 Aug 1943

Displacement, tons: 1,400 standard; 1,850 full load
Dimensions, feet (metres): 302.7 × 36.6 × 13 *(92.3 × 11.3 × 4)*
Main machinery: 4 Fairbanks-Morse 38D8-1/8-10 diesels; 7,080 hp *(5.3 MW)* sustained; 2 shafts
Speed, knots: 12. **Range, miles:** 13,000 at 12 kt
Complement: 216 (15 officers)

Guns: 2 USN 3 in *(76 mm)*/50; 20 rds/min to 12 km *(6.6 n miles)*; weight of shell 6 kg.
8 Bofors 40 mm/60 (1 quad, 2 twin) Mk 2 and Mk 1; 120 rds/min to 10 km *(5.5 n miles)*; weight of shell 0.89 kg.
2 Oerlikon 20 mm. 2—37 mm saluting guns.
Weapons control: Mk 52 (for 3 in); Mk 51 Mod 2 (for 40 mm).
Radars: Surface search: Kelvin Hughes Type 17; I-band.
Navigation: Kelvin Hughes Type 14; I-band.

Programmes: Transferred from US 1 October 1973.
Modernisation: OTO Melara 76 mm gun fitted in 1995 but subsequently removed and US 3 in gun restored.
Operational: Employed as training ship and based at Tampico. A/S weapons and sensors removed. Speed much reduced. Pennant number changed in 2001.

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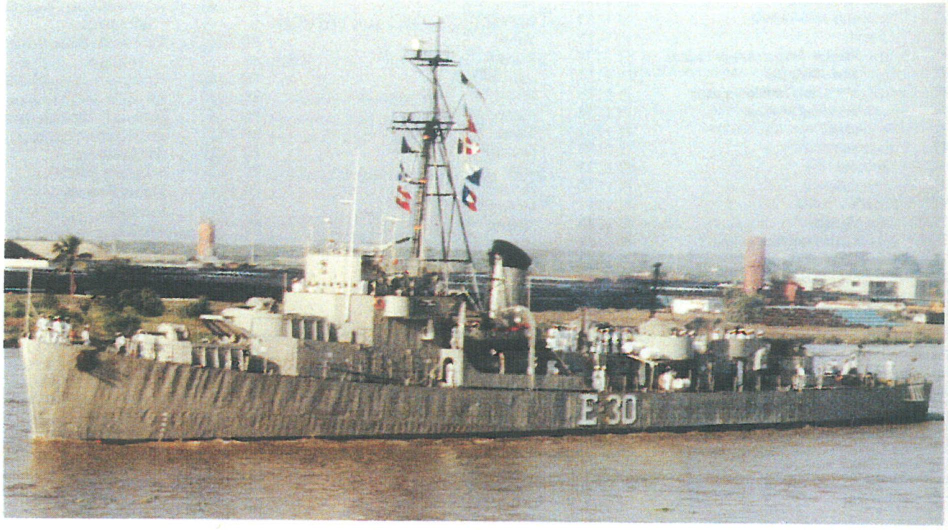


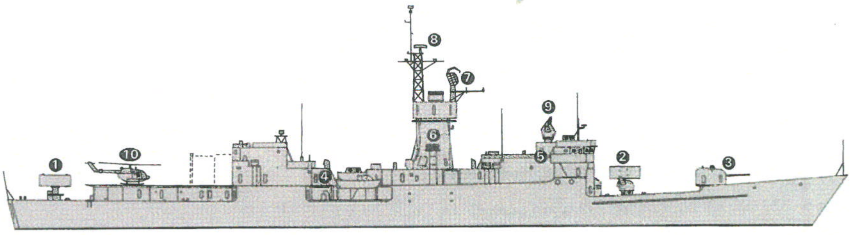
COMODORO MANUEL AZUETA (old number)
10/1998, E & M Laursen / 0052604

4 ALLENDE (KNOX) CLASS (FFHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
IGNACIO ALLENDE (ex-*Stein*)	F 211 (ex-E 50, ex-FF 1065)	Lockheed	1 June 1970	19 Dec 1970	8 Jan 1972
MARIANO ABASOLO (ex-*Marvin Shields*)	F 212 (ex-E 51, ex-FF 1066)	Todd Shipyards	12 Apr 1968	23 Oct 1969	10 Apr 1971
GUADALOUPE VICTORIA (ex-*Pharris*)	F 213 (ex-E 52, ex-FF 1094)	Avondale Shipyards	11 Feb 1972	16 Dec 1972	26 Jan 1974
MINA (ex-*Whipple*)	F 214 (ex-FF 1062)	Todd Shipyards	24 Apr 1967	12 Apr 1968	22 Aug 1970

Displacement, tons: 3,011 standard; 4,260 full load
Dimensions, feet (metres): 439.6 × 46.8 × 15; 24.8 (sonar) *(134 × 14.3 × 4.6; 7.8)*
Main machinery: 2 Combustion Engineering/Babcock & Wilcox boilers; 1,200 psi *(84.4 kg/cm^2)*; 950°F *(510°C)*; 1 Westinghouse turbine; 35,000 hp *(26 MW)*; 1 shaft
Speed, knots: 27. **Range, miles:** 4,000 at 22 kt on 1 boiler
Complement: 288 (20 officers)

Missiles: SAM: 1 Mk 25 launcher for Sea Sparrow (in F 211) ❶ (see *Structure*).
A/S: Honeywell ASROC Mk 16 octuple launcher with reload system (has 2 cells modified to fire Harpoon) ❷; inertial guidance to 1.6-10 km *(1-5.4 n miles)*; payload Mk 46.
Guns: 1 FMC 5 in *(127 mm)*/54 Mk 42 Mod 9 ❸; 20-40 rds/min to 24 km *(13 n miles)* anti-surface; 14 km *(7.7 n miles)* anti-aircraft; weight of shell 32 kg.
Torpedoes: 4—324 mm Mk 32 (2 twin) fixed tubes ❹. 22 Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled fixed Mk 36 ❺; IR flares and chaff to 4 km *(2.2 n miles)*. T Mk-6 Fanfare/SLQ-25 Nixie; torpedo decoy. Prairie Masker hull and blade rate noise suppression.
ESM: SLQ-32(V)2 ❻; intercept.
Weapons control: Mk 68 Mod 3 GFCS. Mk 114 Mod 6 ASW FCS. Mk 1 target designation system. MMS target acquisition sight (for mines, small craft and low flying aircraft).



IGNACIO ALLENDE

(Scale 1 : 1,200), Ian Sturton / 0114668

Radars: Air search: Lockheed SPS-40B ❼; B-band.
Surface search: Raytheon SPS-10 or Norden SPS-67 ❽; G-band.
Navigation: Marconi LN66; I-band.
Fire control: Western Electric SPG-53D/F ❾; I/J-band.
Tacan: SRN 15.
Sonars: EDO/General Electric SQS-26CX; bow-mounted; active search and attack; medium frequency.

Helicopters: 1 BO 105 CB ❿.

Programmes: First pair decommissioned from USN in 1992/93. Both transferred on 29 January 1997 and arrived in Mexico 16 August 1997. Both then underwent extensive refits, entering service on 23 November 1998. Third of class *(Pharris)* transferred 2 February 2000 and fourth ship *(Whipple)* transferred in August 2001.
Structure: Four Mk 32 torpedo tubes are fixed in the midships structure, two to a side, angled out at 45°. The original 'Knox' class SAM launcher has been put back aft, in F 211 only.
Operational: In US service these ships had Harpoon SSM, but it is reported that these weapons are not carried. Pennant numbers changed in 2001. F 214 based at Manzanillo, the remainder at Tampico.

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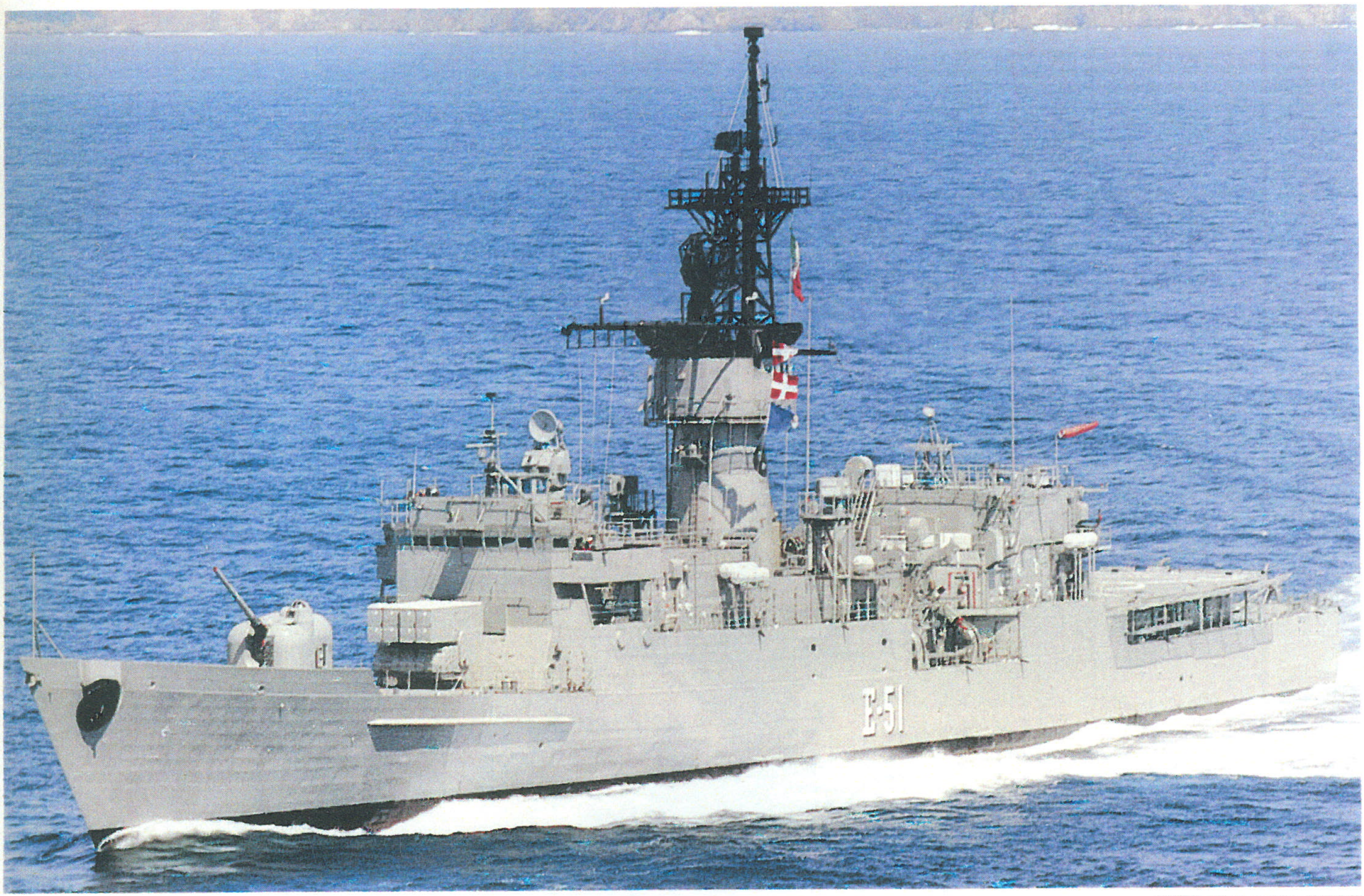

MARIANO ABASOLO (old number)

4/1999, Mexican Navy / 0081243

IGNACIO ALLENDE (old number)

11/1998, Mexican Navy / 0017679

2 BRAVO (BRONSTEIN) CLASS (FFH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
NICOLAS BRAVO (ex-*McCloy*)	F 201 (ex-E 40, ex-FF 1038)	Avondale Shipyards	15 Sep 1961	9 June 1962	21 Oct 1963
HERMENEGILDO GALEANA (ex-*Bronstein*)	F 202 (ex-E 42, ex-FF 1037)	Avondale Shipyards	16 May 1961	31 Mar 1962	16 June 1963

Displacement, tons: 2,360 standard; 2,650 full load
Dimensions, feet (metres): 371.5 × 40.5 × 13.5; 23 (sonar) *(113.2 × 12.3 × 4.1; 7)*
Main machinery: 2 Foster-Wheeler boilers; 1 De Laval geared turbine; 20,000 hp *(14.92 MW)*; 1 shaft
Speed, knots: 23.5. **Range, miles:** 3,924 at 15 kt
Complement: 207 (17 officers)

Missiles: A/S: Honeywell ASROC Mk 112 octuple launcher ❶.
Guns: 2 USN 3 in *(76 mm)*/50 (twin) Mk 33 ❷; 50 rds/min to 12.8 km *(7 n miles)*; weight of shell 6 kg, or 1 Bofors 57 mm/70 Mk 2; 220 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg.
Torpedoes: 6—324 mm US Mk 32 Mod 7 (2 triple) tubes ❸. 14 Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor 6-barrelled fixed Mk 33; IR flares and chaff to 4 km *(2.2 n miles)*.
T-Mk 6 Fanfare; torpedo decoy system.
Weapons control: Mk 56 GFCS. Mk 114 ASW FCS. Mk 1 target designation system. Elsag NA 18 optronic director may be fitted.
Radars: Air search: Lockheed SPS-40D ❹; B-band; range 320 km *(175 n miles)*.
Surface search: Raytheon SPS-10F ❺; G-band.
Navigation: Marconi LN66; I-band.
Fire control: General Electric Mk 35 ❻; I/J-band.
Sonars: EDO/General Electric SQS-26 AXR; bow-mounted; active search and attack; medium frequency.

Helicopters: Platform and some facilities but no hangar.

Programmes: Transferred from the US to Mexico by sale 12 November 1993 having paid off in December 1990.
Modernisation: Bofors 57 mm SAK may be fitted to replace the Mk 33 gun, possibly with an Elsag NA 18 optronic director.
Structure: Position of stem anchor and portside anchor (just forward of gun mount) necessitated by large bow sonar dome. As built, a single 3 in (Mk 34) open mount was aft of the helicopter deck; removed for installation of towed sonar which has since been taken out.
Operational: ASROC is non-operational. Pennant numbers changed in 2001. Based at Ensenada.

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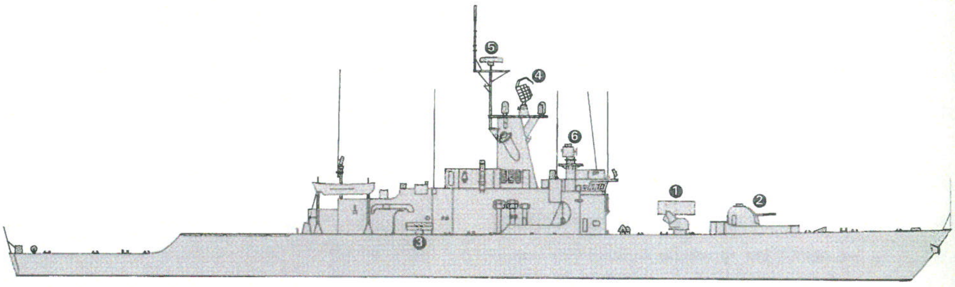


NICOLAS BRAVO

(Scale 1 : 900), Ian Sturton

HERMENEGILDO GALEANA (old number)
10/1998, Mexican Navy / 0050720

NICOLAS BRAVO (old number)

4/1999, Mexican Navy / 0081242

SHIPBORNE AIRCRAFT

Notes: Two Eurocopter AS 565 Panthers were reported ordered in 2003.

Numbers/Type: 11/10 MBB BO 105CB/MD 902 Explorer.
Operational speed: 113 kt *(210 km/h)*.
Service ceiling: 9,845 ft *(3,000 m)*.
Range: 407 n miles *(754 km)*.
Role/Weapon systems: Coastal patrol helicopter for patrol, fisheries protection and EEZ protection duties; SAR as secondary role. A modernisation programme was announced in October 2003 with the first upgraded aircraft to be delivered by early 2004. Sensors: Bendix search radar. Weapons: MGs or rocket pods.

UPDATED

ARMADA DE MEXICO

BO 105CB *9/1994, Mexican Navy* / 0052606

Numbers/Type: 3 Eurocopter AS 555 AF Fennec.
Operational speed: 121 kt *(225 km/h)*.
Service ceiling: 13,120 ft *(4,000 m)*.
Range: 389 n miles *(722 km)*.
Role/Weapon systems: Patrol helicopter for EEZ protection and SAR. More may be acquired when funds are available. Sensors: Bendix 1500 search radar. Weapons: Can carry up to two torpedoes, rocket pods or an MG.

VERIFIED

ARMADA DE MEXICO
MR-159

AS 555 AF *9/1994, Mexican Navy* / 0052607

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: (1) Transport aircraft used include six Antonov An-32B, one DHC-5D Buffalo, 12 Mil Mi-8 and four Mil Mi-2 Hoplite.
(2) Training aircraft include ten Aeromacchi M-290TP Rédigos, ten Maule MX-7-180, ten Zlin Z242L, five Beech B55 Baron, two Robinson R22 Mariners and four MD 500 helicopters.
(3) Aircraft with a communications role include one Learjet 60, one Learjet 31A, one Learjet 25D, one Rockwell 306 Sabreliner and five Gulfstream 695.
(4) Patrol aircraft include one Piper PA-31 Navajo, one Cessna 182 Skylane, one Cessna 210 Centurion, one Cessna 402B, one Cessna 404 and one Cessna 441.
(5) A contract for the supply of two Eurocopter AS.565 helicopters was signed on 13 October 2003. Roles envisaged include coastal patrol and SAR and delivery is expected in 2005.

Mi-8 *7/2003*, Adolfo Ortigueira Gil* / 0568873

LEARJET *7/2003*, Adolfo Ortigueira Gil* / 0567901

Numbers/Type: 8 CASA C-212 Aviocar.
Operational speed: 190 kt *(353 km/h)*.
Service ceiling: 24,000 ft *(7,315 m)*.
Range: 1,650 n miles *(3,055 km)*.
Role/Weapon systems: Acquired from 1987 and used for Maritime Surveillance. Two aircraft to be upgraded with EADS/CASA Integrated Tactical System (FITS) in 2003. Sensors: Search radar; APS 504. Weapons: Unarmed.

UPDATED

MP-313
MARINA

C-212 *7/2003*, Adolfo Ortigueira Gil* / 0568874

PATROL FORCES

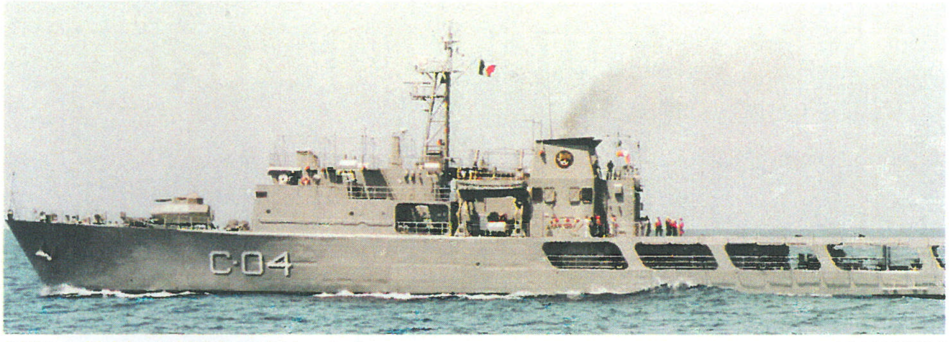
4 HOLZINGER CLASS (GUNSHIPS) (PSOH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
CAPITÁN DE NAVIO SEBASTIAN JOSÉ HOLZINGER (ex-*Uxmal*)	PO 131 (ex-C 01, ex-GA 01)	Tampico	1 June 1988	23 Nov 1991
CAPITÁN DE NAVIO BLAS GODINEZ (ex-*Mitla*)	PO 132 (ex-C 02, ex-GA 02)	Veracruz	22 Mar 1988	21 Mar 1992
BRIGADIER JOSÉ MARIÁ DE LA VEGA (ex-*Peten*)	PO 133 (ex-C 03, ex-GA 03)	Tampico	22 Mar 1992	6 Mar 1994
GENERAL FELIPE B BERRIOZÁBAL (ex-*Anahuac*)	PO 134 (ex-C 04, ex-GA 04)	Veracruz	21 Apr 1991	16 Feb 1993

Displacement, tons: 1,290 full load
Dimensions, feet (metres): 244.1 × 34.4 × 11.2 *(74.4 × 10.5 × 3.4)*
Main machinery: 2 MTU 20V 956 TB92 diesels; 11,700 hp(m) *(8.6 MW)* sustained; 2 shafts
Speed, knots: 22. **Range, miles:** 3,820 at 16 kt
Complement: 75 (11 officers)

Guns: 1 Bofors 57 mm/70 Mk 2; 220 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg or 2 Bofors 40 mm/60 (1 twin).
Combat data systems: Elsag 2 CSDA-10.
Weapons control: Elsag NA 18 optronic director.
Radars: Surface search: Raytheon SPS-64(V)6A; I-band.
Navigation: Kelvin Hughes Nucleus; I-band.

Helicopters: 1 MBB BO 105 CB.



GENERAL FELIPE B BERRIOZÁBAL (old number) *9/2001* / 0533279

Programmes: Originally four were ordered from Tampico and Veracruz. First laid down November 1983, second in 1984 but then there were delays caused by financial problems. Named after military heroes.
Structure: An improved variant of the Bazán 'Halcon' (Uribe) class with a flight deck extended to the stern. PO 131 and 132 commissioned with a Bofors 40 mm/60 in lieu of the 57 mm and without the optronic director. PO 133 fitted with what appears to be a 3 in gun. The Navy describes this as a temporary arrangement.
Operational: Pennant numbers changed in 2001. PO 131 based at Tampico, PO 132 at Manzanillo, PO 133 at Ensenada and PO 134 at Coatzacoalcos.

UPDATED

4 SIERRA CLASS (GUNSHIPS) (PSOH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
JUSTO SIERRA MENDEZ	PO 141 (ex-C 2001)	Tampico, Tamaulipas	19 Jan 1998	1 June 1998	1 June 1999
BENITO JUAREZ	PO 142 (ex-C 2002)	Salina Cruz, Oaxaco	19 Jan 1998	23 July 1998	1 June 1999
GUILLERMO PRIETO	PO 143 (ex-C 2003)	Tampico, Tamaulipas	1 June 1998	18 Sep 1999	21 Apr 2000
MATIAS ROMERO	PO 144 (ex-C 2004)	Salina Cruz, Oaxaco	23 July 1998	17 Sep 1999	21 Apr 2000

Displacement, tons: 1,344 full load
Dimensions, feet (metres): 231 × 34.4 × 9.3 *(70.4 × 10.5 × 2.8)*
Main machinery: 2 Caterpillar 3616 V16 diesels; 6,197 hp(m) *(4.55 MW)*; 2 shafts
Speed, knots: 18
Complement: 76 (10 officers)

Guns: 1 Bofors 57 mm/70 Mk 2; 220 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg.
Combat data systems: Alenia 2.
Weapons control: Saab EOS 450 optronic director.
Radars: Air/surface search: E/F-band.
Surface search: I-band.

Helicopters: 1 MD 902 Explorer.

Programmes: Follow on to the 'Holzinger' class. Ordered in 1997.
Structure: Derived from the 'Holzinger' class but with a markedly different superstructure. All ships carry 11 m interceptor craft capable of 50 kt.
Operational: All based at Coatzacoalcos.

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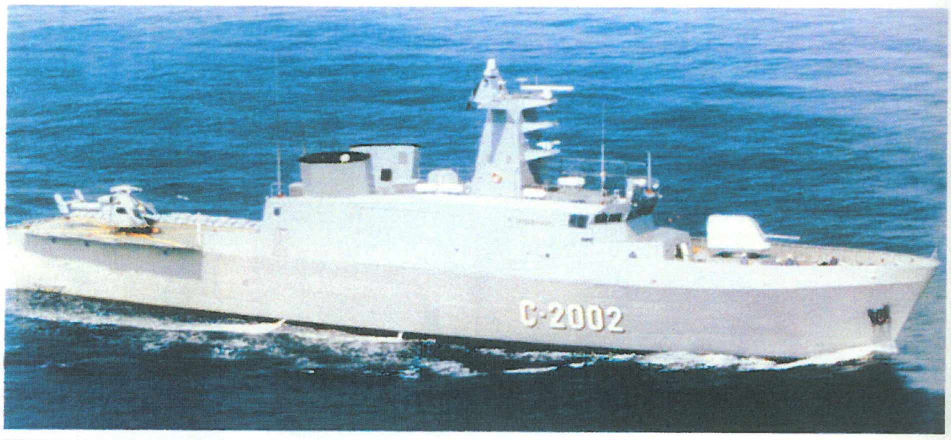

BENITO JUAREZ (old number)

2000, Mexican Navy / 0114539

4 DURANGO CLASS (GUNSHIPS) (PSOH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
DURANGO	PO 151	Tampico, Tamaulipas	18 Dec 1999	11 Sep 2000	23 Nov 2000
SONORA	PO 152	Salina Cruz, Oaxaco	14 Dec 1999	4 Sep 2000	23 Nov 2000
GUANAJUATO	PO 153	Tampico, Tamaulipas	2000	13 Dec 2001	2002
VERACRUZ	PO 154	Salina Cruz, Oaxaco	4 Sep 2000	17 Dec 2001	2003

Displacement, tons: 1,470 full load
Dimensions, feet (metres): 268 × 34.4 × 9.3 *(81.8 × 10.5 × 2.8)*
Main machinery: 2 Caterpillar 3616 V16 diesels; 6,197 hp(m) *(4.55 MW)*; 2 shafts
Speed, knots: 18
Complement: 76 (10 officers)

Guns: 1 Bofors 57 mm/70 Mk 3; 220 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg.
Combat data systems: Alenia 2.
Weapons control: Saab EOS 450 optronic director.
Radars: Air/surface search: E/F-band.
Surface search: I-band.

Helicopters: 1 MD 902 Explorer.

Programmes: Follow on to the 'Sierra' class. Ordered on 1 June 1998.
Structure: Derived from the 'Holzinger' class but with a markedly different superstructure. 'Durango' class slightly larger than the 'Sierra' class. All ships carry 11 m interceptor craft capable of 50 kt.
Operational: PO 151 and PO 152 based at Coatzacoalcos, PO 153 at Tampico and PO 154 at Salina Cruz. ***NEW ENTRY***

0 + 4 OAXACA CLASS (GUNSHIPS) (PSOH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
OAXACA	PO 161	Salina Cruz, Oaxaco	17 Dec 2001	11 Apr 2003	2004
BAJA CALIFORNIA	PO 162	Tampico, Tamaulpas	13 Dec 2001	21 May 2003	2004
—	PO 163	Salina Cruz, Oaxaco	11 Apr 2003	2004	2005
—	PO 164	Tampico, Tamaulpas	21 May 2003	2004	2005

Displacement, tons: 1,680
Dimensions, feet (metres): 282.2 × 34.4 × 9.3 *(86.0 × 10.5 × 3.6)*
Main machinery: to be announced
Speed, knots: 20
Complement: 77

Guns: to be announced.
Combat data systems: to be announced.
Weapons control: to be announced.
Radars: to be announced.
Helicopters: to be announced.

Structure: A further derivation of the basic 'Holzinger' class and a slightly longer version of the 'Durango' class. Capable of operating a helicopter and equipped with a fast 11 m interception boat capable of 50 kt.

NEW ENTRY

6 URIBE CLASS (GUNSHIPS) (PSOH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
CADETE VIRGILIO URIBE	PO 121 (ex-C 11, ex-GH 01)	Bazán, San Fernando	1 July 1981	12 Nov 1981	2 June 1982
TENIENTE JOSÉ AZUETA	PO 122 (ex-C 12, ex-GH 02)	Bazán, San Fernando	7 Sep 1981	12 Dec 1981	30 Aug 1982
CAPITÁN de FRAGATA PEDRO SÁINZ de BARANDA	PO 123 (ex-C 13, ex-GH 03)	Bazán, San Fernando	22 Oct 1981	29 Jan 1982	20 Oct 1982
COMODORO CARLOS CASTILLO BRETÓN	PO 124 (ex-C 14, ex-GH 04)	Bazán, San Fernando	11 Nov 1981	26 Feb 1982	4 Nov 1982
VICEALMIRANTE OTHÓN P BLANCO	PO 125 (ex-C 15, ex-GH 05)	Bazán, San Fernando	18 Dec 1981	26 Mar 1982	16 Nov 1982
CONTRALMIRANTE ANGEL ORTIZ MONASTERIO	PO 126 (ex-C 16, ex-GH 06)	Bazán, San Fernando	30 Dec 1981	4 May 1982	17 Dec 1982

Displacement, tons: 988 full load
Dimensions, feet (metres): 219.9 × 34.4 × 11.5 *(67 × 10.5 × 3.5)*
Main machinery: 2 MTU-Bazán 16V 956 TB91 diesels; 7,500 hp(m) *(5.52 MW)* sustained; 2 shafts
Speed, knots: 22. **Range, miles:** 5,000 at 13 kt
Complement: 46 (7 officers)

Guns: 1 Bofors 40 mm/70; 300 rds/min to 12.5 km *(6.7 n miles)*; weight of shell 0.96 kg.
Weapons control: Naja optronic director.
Radars: Surface search: Decca AC 1226; I-band.
Navigation: I-band.
Tacan: SRN 15.

Helicopters: 1 MBB BO 105 CB.

Programmes: Ordered in 1980 to a 'Halcon' class design. Contracts for a further eight of the class have been shelved. Pennant numbers changed in 1992. Named after naval heroes.
Structure: Flight deck extends to the stern. Similar ships built for Argentina.
Operational: Used for EEZ patrol. Pennant numbers changed in 2001. PO 121 and PO 123 based at Ensenada, PO 122 at Coatzacoalcos, PO 124 and PO 126 at Manzanillo and PO 125 at Tampico.

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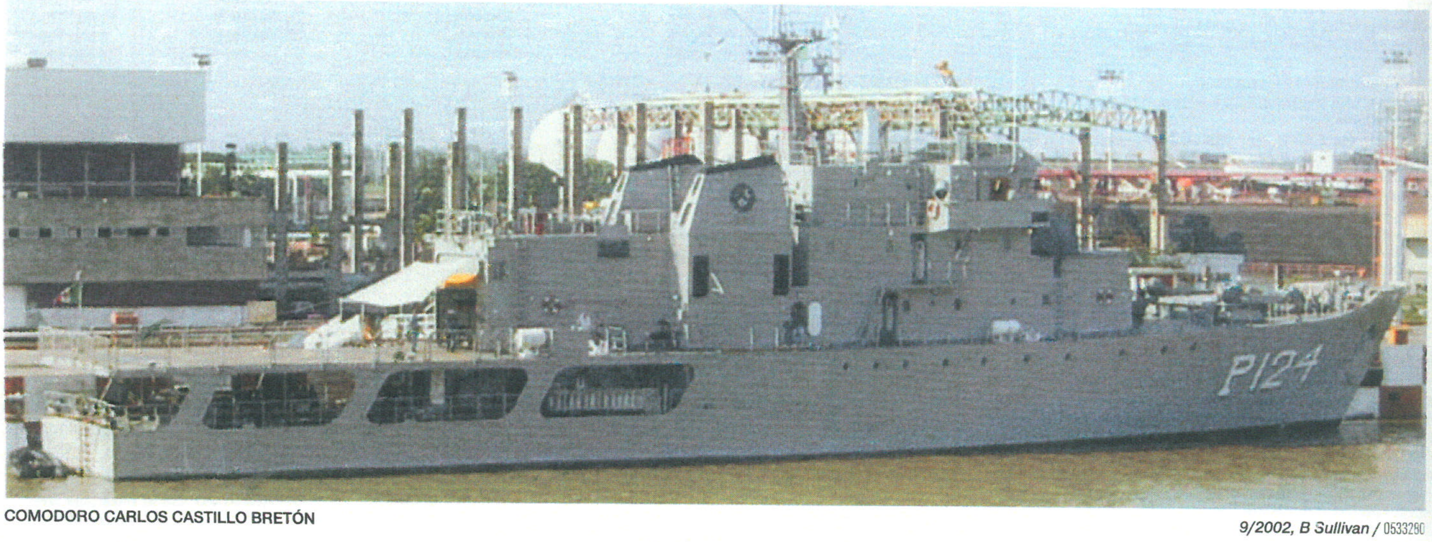

COMODORO CARLOS CASTILLO BRETÓN

9/2002, B Sullivan / 0533280

17 VALLE (AUK) CLASS (COAST GUARD) (PG/PGH)

LEANDRO VALLE (ex-*Pioneer* MSF 105) PO 101 (ex-C 70, ex-G-01)
JUAN DE LA BARRERA (ex-*Guillermo Prieto*, ex-*Symbol* MSF 123) PO 102 (ex-C 71, ex-G-02)
MARIANO ESCOBEDO (ex-*Champion* MSF 314) PO 103 (ex-C 72, ex-G-03)
MANUEL DOBLADO (ex-*Defense* MSF 317) PO 104 (ex-C 73, ex-G-05)
SEBASTIAN LERDO DE TEJADA (ex-*Devastator* MSF 318) PO 105 (ex-C 74, ex-G-06)
SANTOS DEGOLLADO (ex-*Gladiator* MSF 319) PO 106 (ex-C 75, ex-G-07)
IGNACIO DE LA LLAVE (ex-*Spear* MSF 322) PO 107 (ex-C 76, ex-G-08)
JUAN N ALVARES (ex-*Ardent* MSF 340) PO 108 (ex-C 77, ex-G-09)
MANUEL GUTIERREZ ZAMORA (ex-*Roselle* MSF 379) PO 109 (ex-C 78, ex-G-10)
VALENTIN GOMEZ FARIAS (ex-*Starling* MSF 64) PO 110 (ex-C 79, ex-G-11)
IGNACIO MANUEL ALTAMIRANO (ex-*Sway* MSF 120) PO 111 (ex-C 80, ex-G-12)
FRANCISCO ZARCO (ex-*Threat* MSF 124) PO 112 (ex-C 81, ex-G-13)
IGNACIO L VALLARTA (ex-*Velocity* MSF 128) PO 113 (ex-C 82, ex-G-14)
JESUS GONZALEZ ORTEGA (ex-*Chief* MSF 315) PO 114 (ex-C 83, ex-G-15)
FELIPE XICOTÉNCATL (ex-*Melchor Ocampo*, ex-*Scoter* MSF 381) PO 115 (ex-C 84, ex-G-16)
JUAN ALDAMA (ex-*Piloti* MSF 104) PO 116 (ex-C 85, ex-G-18)
MARIANO MATAMOROS (ex-*Hermenegildo Galeana*, ex-*Sage* MSF 111) PO 117 (ex-C 86, ex-G-19)

Displacement, tons: 1,065 standard; 1,250 full load
Dimensions, feet (metres): 221.2 × 32.2 × 10.8 *(67.5 × 9.8 × 3.3)*
Main machinery: Diesel-electric; 2 Caterpillar diesels; 2 shafts
Speed, knots: 18. **Range, miles:** 6,900 at 10 kt
Complement: 73 (9 officers)
Guns: 1 USN 3 in *(76 mm)*/50. 4 Bofors 40 mm/60 (2 twin).
2—12.7 mm MGs (in some on quarterdeck).
Radars: Surface search: Kelvin Hughes 14/9 (in most); I-band.
Helicopters: Platform for 1 BO 105 (C 72, C 73 and C 79 only).

Comment: Transferred from US, six in February 1973, four in April 1973, nine in September 1973. Employed on Coast Guard duties. All built during Second World War. Variations are visible in the mid-ships section where some have a bulwark running from the break of the forecastle to the quarterdeck. Minesweeping gear removed. All ships re-engined 1999-2002. Some carry a Pirana 26 kt motor launch armed with 40 mm grenade launchers and 7.62 mm MGs. P 103, P 104 and P 110 have had helicopter flight decks installed aft. Plans to fit flight decks in the others have been shelved.

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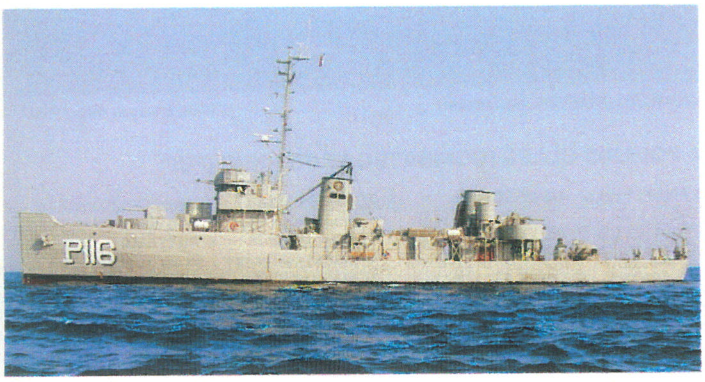
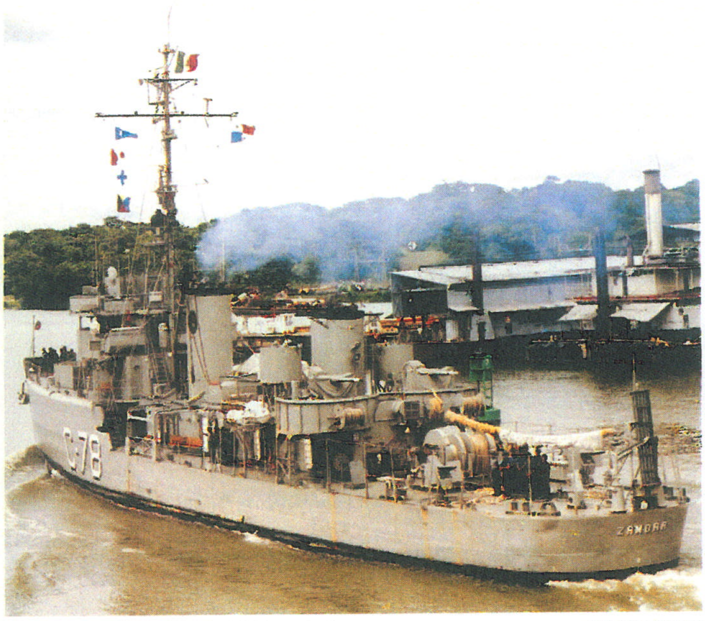


JUAN ALDAMA *6/2003*, Mexican Navy* / 0567906



MANUEL GUTIERREZ ZAMORA (old number) *11/2000* / 0105130

1 + 1 (4) CENTENARIO CLASS (PBO)

Name	*No*	*Builders*	*Launched*	*Commissioned*
DÉMOCRATA	PC 241 (ex-C 101)	Varadero, Guaymas	16 Oct 1997	9 July 1998

Displacement, tons: 450 full load
Dimensions, feet (metres): 172.2 × 29.5 × 8.5 *(52.5 × 9 × 2.6)*
Main machinery: 2 MTU 20V 956 TB92 diesels; 6,119 hp(m) *(4.5 MW)*; 2 shafts
Speed, knots: 30
Complement: 36 (13 officers)
Guns: 2 Bofors 40 mm/60 (twin).
Radars: Surface search: Racal Decca; E/F-band.

Comment: Based at Tampico. A second unit was reported under construction in August 2002 and further ships may be built if funds become available. A 50 kt Boston Whaler launch is carried at the stern.

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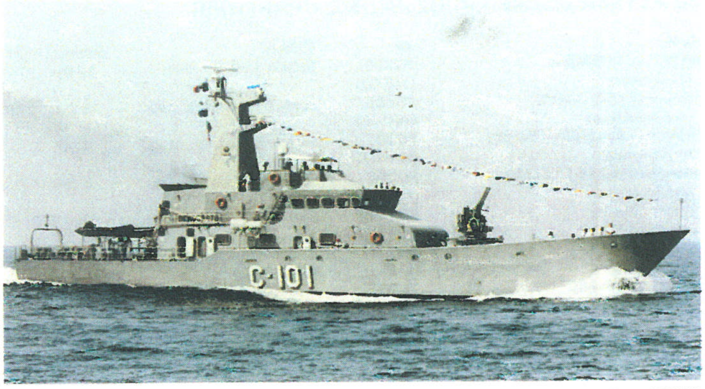

DÉMOCRATA (old number) *4/1999, Mexican Navy* / 0081248

3 CAPE (PGM 71) CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Recommissioned*
CABO CORRIENTES (ex-*Jalisco*, ex-*Cape Carter*)	PC 271 (ex-P 42)	CG Yard, Curtis Bay	16 Mar 1990
CABO CORZO (ex-*Nayarit*, ex-*Cape Hedge*)	PC 272 (ex-P 43)	CG Yard, Curtis Bay	21 Apr 1990
CABO CATOCHE (ex-*Cape Hattaras*)	PC 273 (ex-P 44	CG Yard, Curtis Bay	18 Mar 1991

Displacement, tons: 98 standard; 148 full load
Dimensions, feet (metres): 95 × 20.2 × 6.6 *(28.9 × 6.2 × 2)*
Main machinery: 2 GM 16V-149TI diesels; 2,322 hp *(1.73 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 2,500 at 10 kt
Complement: 14 (1 officer)
Guns: 1—20 mm. 2—12.7 mm MGs.
Radars: Navigation: Raytheon SPS-64; I-band.

Comment: All built in 1953; have been re-engined and extensively modernised. Transferred under the FMS programme, having paid off from the US Coast Guard. Pennant numbers changed in 2001. PC 271 and PC 272 based at Ensenada and PC 273 at Coatzacoalcos.

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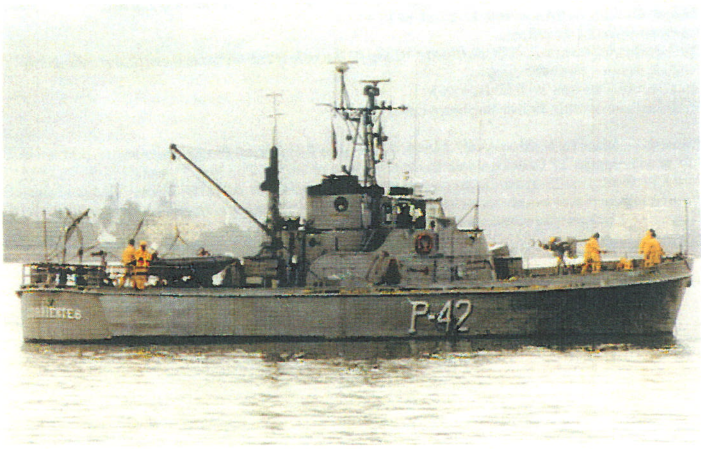

CABO CORRIENTES (old number) *6/2001, Mexican Navy* / 0114675

2 POINT CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Recommissioned*
PUNTA MORRO (ex-*Point Verde*)	PC 281 (ex-P 60, ex-P 45)	CG Yard, Curtis Bay	12 June 1991
PUNTA MASTUN (ex-*Point Herron*)	PC 282 (ex-P 61, ex-P 46)	CG Yard, Curtis Bay	21 June 1991

Displacement, tons: 67 full load
Dimensions, feet (metres): 83 × 17.2 × 5.8 *(25.3 × 5.2 × 1.8)*
Main machinery: 2 Caterpillar diesels; 1,600 hp *(1.19 MW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 1,500 at 8 kt
Complement: 10
Guns: 2—12.7 mm MGs (can be carried).
Radars: Surface search: Raytheon SPS-64; I-band.

Comment: Ex-US Coast Guard craft built in 1961. Steel hulls and aluminium superstructures. Speed much reduced from original 23 kt. Pennant numbers changed in 2001.

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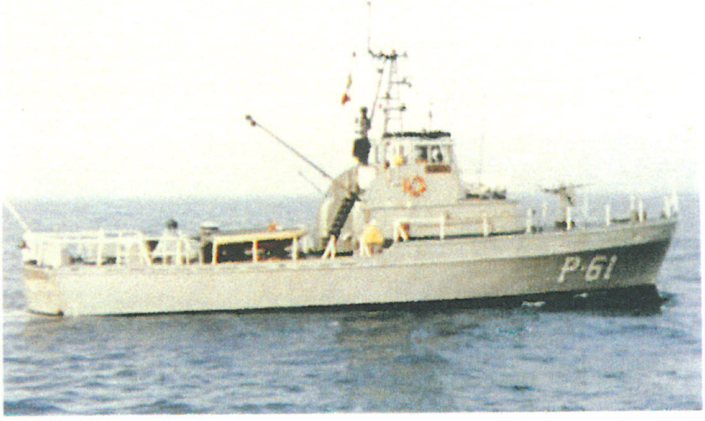

PUNTA MASTUN (old number) *6/1994, Mexican Navy* / 0081251

20 AZTECA CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
MATIAS DE CORDOVA (ex-*Guaycura*)	PC 202 (ex-P 02)	Scott & Sons, Bowling	22 Oct 1974
IGNACIO LÓPEZ RAYÓN (ex-*Tarahumara*)	PC 206 (ex-P 06)	Ailsa Shipbuilding Co Ltd	19 Dec 1974
MANUEL CRESCENCIO REJON (ex-*Tepehuan*)	PC 207 (ex-P 07)	Ailsa Shipbuilding Co Ltd	4 July 1975
JUAN ANTONIO DE LA FUENTE (ex-*Mexica*)	PC 208 (ex-P 08)	Ailsa Shipbuilding Co Ltd	4 July 1975
LEON GUZMAN (ex-*Zapoteca*)	PC 209 (ex-P 09)	Scott & Sons, Bowling	7 Apr 1975
IGNACIO RAMIREZ (ex-*Huastela*)	PC 210 (ex-P 10)	Ailsa Shipbuilding Co Ltd	17 July 1975
IGNACIO MARISCAL (ex-*Mazahua*)	PC 211 (ex-P 11)	Ailsa Shipbuilding Co Ltd	23 Sep 1975
HERIBERTO JARA CORONA (ex-*Huichol*)	PC 212 (ex-P 12)	Ailsa Shipbuilding Co Ltd	7 Nov 1975
COLIMA (ex-*Yacqui*)	PC 214 (ex-P 14)	Scott & Sons, Bowling	23 June 1975
JOSE JOAQUIN FERNANDEZ DE LIZARDI (ex-*Tlapaneco*)	PC 215 (ex-P 15)	Ailsa Shipbuilding Co Ltd	24 Dec 1975
FRANCISCO J MUGICA (ex-*Tarasco*)	PC 216 (ex-P 16)	Ailsa Shipbuilding Co Ltd	21 Nov 1975
JOSE MARIA DEL CASTILLO VELASCO (ex-*Otomi*)	PC 218 (ex-P 18)	Lamont & Co Ltd	1 Nov 1975
JOSE NATIVIDAD MACIAS (ex-*Pimas*)	PC 220 (ex-P 20)	Lamont & Co Ltd	29 Dec 1976
TAMAULIPAS (ex-*Mazateco*)	PC 223 (ex-P 23)	Veracruz	18 July 1977
YUCATAN (ex-*Tolteca*)	PC 224 (ex-P 24)	Veracruz	1 Nov 1977
TABASCO (ex-*Maya*)	PC 225 (ex-P 25)	Veracruz	1 Dec 1978
COCHIMIE (ex-*Veracruz*)	PC 226 (ex-P 26)	Veracruz	1 Dec 1978
PUEBLA (ex-*Totonaca*)	PC 228 (ex-P 28)	Veracruz	1 June 1982
LEONA VICARIO (ex-*Olmeca*)	PC 230 (ex-P 30)	Salina Cruz	1 May 1977
JOSEFA ORTIZ DE DOMINGUEZ (ex-*Tlahuica*)	PC 231 (ex-P 31)	Salina Cruz	1 June 1977

Displacement, tons: 148 full load
Dimensions, feet (metres): 112.7 × 28.3 × 7.2 *(34.4 × 8.7 × 2.2)*
Main machinery: 2 Paxman 12YJCM diesels; 3,000 hp *(2.24 MW)* sustained; 2 shafts
Speed, knots: 24. **Range, miles:** 1,537 at 14 kt
Complement: 24 (2 officers)
Guns: 1 Bofors 40 mm/60; 300 rds/min to 12 km *(6.5 n miles)* anti-surface; 4 km *(2.2 n miles)* anti-aircraft; weight of shell 2.4 kg.
1 Oerlikon 20 mm or 1—7.62 mm MG.
Radars: Surface search: Kelvin Hughes; I-band.

Comment: Ordered by Mexico on 27 March 1973 from Associated British Machine Tool Makers Ltd to a design by TT Boat Designs, Bembridge, Isle of Wight. The first 21 were modernised in 1987 in Mexico with spare parts and equipment supplied by ABMTM Marine Division who supervised the work which included engine refurbishment and the fitting of air conditioning. Names and pennant numbers changed in 2001.

UPDATED

IGNACIO ZARAGOZA (old number) *4/1999, van Ginderen Collection* / 0081249

4 ISLA CLASS (FAST ATTACK CRAFT) (PBF)

Name	*No*	*Builders*	*Commissioned*
ISLA CORONADO	PI 1201 (ex-P 51)	Equitable Shipyards	1 Sep 1993
ISLA LOBOS	PI 1202 (ex-P 52)	Equitable Shipyards	1 Nov 1993
ISLA GUADALUPE	PI 1203 (ex-P 53)	Equitable Shipyards	1 Feb 1994
ISLA COZUMEL	PI 1204 (ex-P 54)	Equitable Shipyards	1 Apr 1994

Displacement, tons: 52 full load
Dimensions, feet (metres): 82 × 17.9 × 4 *(25 × 5.5 × 1.2)*
Main machinery: 3 Detroit diesels; 16,200 hp *(12.9 MW)*; 3 Arneson surface drives
Speed, knots: 50. **Range, miles:** 1,200 at 30 kt
Complement: 9 (3 officers)
Guns: 1—12.7 mm MG. 2—7.62 mm MGs.
Radars: Surface search: Raytheon SPS 69; I-band.
Fire control: Thomson-CSF Agrion; J-band.

Comment: Built by the Trinity Marine Group to an XFPB (extra fast patrol boat) design. Deep Vee hulls with FRP/Kevlar construction. Based at Islas Mujeres in the XI naval zone. Similar craft built for US Navy. May be fitted with MM 15 SSMs in due course and armed with 40 mm or 20 mm guns. Pennant numbers changed 2001.

UPDATED

ISLA CORONADO (old number) *6/2001, Mexican Navy* / 0114674

5 LAGUNA (ex-POLIMAR) CLASS (RIVER PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
TAMIAHUA (ex-*Poluno*)	PR 291 (ex-P 70, ex-F 01)	Astilleros de Tampico	1 Oct 1962
LAGARTOS (ex-*Poldos*)	PR 292 (ex-P 71, ex-F 02)	Icacas Shipyard, Guerrero	15 July 1968
CUYUTLAN (ex-*Polcinco*)	PR 293 (ex-P 73, ex-F 05)	Astilleros de Tampico	2 Sep 1959
ALVARADO (ex-*Polsiete*)	PR 294 (ex-P 75, ex-F 07)	—	1 Jan 1989
CATEMACO (ex-*Polocho*)	PR 295 (ex-P 76, ex-F 08)	—	15 Dec 1990

Displacement, tons: 155 full load
Dimensions, feet (metres): 85 × 14.1 × 6.6 *(25.9 × 4.3 × 2)*
Main machinery: 2 diesels; 456 hp *(335 kW)*; 2 shafts
Speed, knots: 8
Guns: 1—40 mm.
Radars: Surface search: Kelvin Hughes; I-band.

Comment: Steel construction. The last two were transferred from the USN on the dates shown and are similar in size. All have *Laguna de* in front of the names. Pennant numbers changed in 2001.

UPDATED

LAGUNA DE LAGARTOS (old number) *6/2001, Mexican Navy* / 0114673

44 POLARIS CLASS (COMBATBOAT 90 HMN) (PBF)

POLARIS PI 1101
SIRÍUS PI 1102
CAPELLA PI 1103
CANOPUS PI 1104
VEGA PI 1105
ACHERNAR PI 1106
RIGEL PI 1107
ARCTURUS PI 1108
ALPHERATZ PI 1109
PROCYÓN PI 1110
AVIOR PI 1111
DENEB PI 1112
FOMALHAUT PI 1113
POLLUX PI 1114
RÉGULUS PI 1115
ACRUX PI 1116
SPICA PI 1117
HADAR PI 1118
SHAULA PI 1119
MIRFAK PI 1120
ANKAA PI 1121
BELLATRIX PI 1122
ELNATH PI 1123
ALNILÁN PI 1124
PEACOCK PI 1125
BETELGEUSE PI 1126
ADHARA PI 1127
ALIOTH PI 1128
RASALHAGUE PI 1129
NUNKI PI 1130
HAMAL PI 1131
SUHAIL PI 1132
DUBHE PI 1133
DENEBOLA PI 1134
ALKAID PI 1135
ALPHECCA PI 1136
ELTANIN PI 1137
KOCHAB PI 1138
ENIF PI 1139
SCHEDAR PI 1140
MARKAB PI 1141
MEGREZ PI 1142
MIZAR PI 1143
PHEKDA PI 1144

Displacement, tons: 19 full load
Dimensions, feet (metres): 52.2 × 12.5 × 2.6 *(15.9 × 3.8 × 0.8)*
Main machinery: 2 CAT 3406E diesels; 1,605 hp(m) *(1.18 MW)*; 2 waterjets
Speed, knots: 47. **Range, miles:** 240 at 30 kt
Complement: 4
Guns: 1—12.7 mm MG.
Radars: Surface search: Litton Decca Bridgemaster E; I-band.

Comment: All named after stars. First 12 ordered from Dockstavarvet, Sweden, on 15 April 1999, second batch of eight on 29 July 1999 and last batch of 20 on 1 February 2000. All delivered by 2001. A further batch of four under construction in 2003. This is the fastest version of this type built so far. These craft are in service with the Swedish and Norwegian navies and with paramilitary forces in Malaysia and China.

UPDATED

ACHERNAR *4/2002, Martin Mokrus* / 0533282

2 LAGO CLASS (RIVER PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
LAGO DE PATZCUARO (ex-*AM 04*)	PR 321 (ex-P 80)	Vera Cruz	9 May 1957
LAGO DE CHAPALA (ex-*AM 05*)	PR 322 (ex-P 81)	Vera Cruz	12 Oct 1959

Displacement, tons: 37 full load
Dimensions, feet (metres): 56.1 × 13.1 × 3.9 *(17.1 × 4 × 1.2)*
Main machinery: 1 diesel; 320 hp(m) *(235 kW)*; 1 shaft
Speed, knots: 5
Complement: 5
Radars: Surface search: Kelvin Hughes; I-band.

Comment: Steel construction. Three of original class now deleted and PR 323 was reported lost on 1 September 2003. Pennant numbers changed in 2001.

UPDATED

LAGO DE PATZCUARO *1/2003*, Gomel/Marsan* / 0568892

12 ARRECIFE (ex-OLMECA II) CLASS
(RIVER PATROL CRAFT) (PBR)

SISAL (ex-*AM-12*)	PR 302 (ex-P 91)
TANHUIJO (ex-*AM-13*)	PR 303 (ex-P 92)
CABEZO (ex-*AM-14*)	PR 304 (ex-P 93)
SANTIAGUILLO (ex-*AM-15*)	PR 305 (ex-P 94)
PALANCAR (ex-*AM-16*)	PR 306 (ex-P 95)
LA GALLEGUILLA (ex-*AM-17*)	PR 307 (ex-P 96)
LA BLANQUILLA (ex-*AM-18*)	PR 308 (ex-P 97)
ANEGADA DE ADENTRO (ex-*AM-19*)	PR 309 (ex-P 98)
RIZO (ex-*AM-20*)	PR 310 (ex-P 99)
PAJAROS (ex-*AM-21*)	PR 311 (ex-P 100)
DE ENMEDIO (ex-*AM-22*)	PR 312 (ex-P 101)
DE HORNOS (ex-*AM-23*)	PR 313 (ex-P 102)

Displacement, tons: 18 full load
Dimensions, feet (metres): 54.8 × 14.4 × 3.9 *(16.7 × 4.4 × 1.2)*
Main machinery: 2 Detroit 8V-92TA diesels; 700 hp *(562 kW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 460 at 10 kt
Complement: 15 (2 officers)
Guns: 1—12.7 mm MG.
Radars: Navigation: Raytheon 1900; I-band.

Comment: Built at Acapulco and completed between June 1982 and October 1989 with GRP hulls. All have *Arrecife* in front of the names. Pennant numbers changed in 2001.

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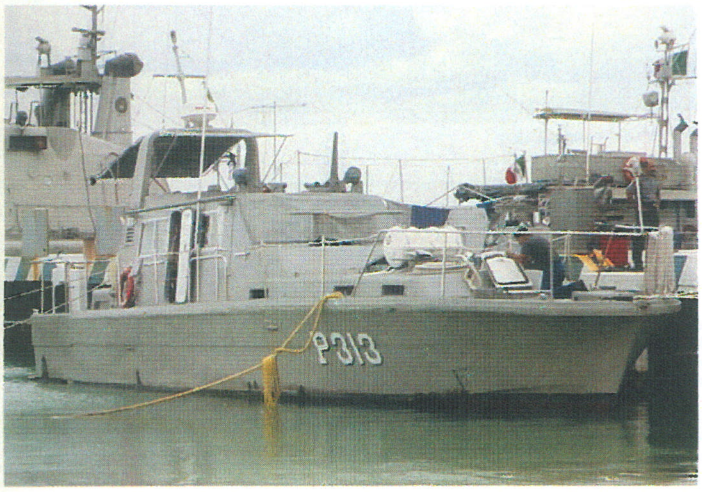

ARRECIFE DE HORNOS *1/2003*, Gomel/Marsan* / 0568891

52 FAST PATROL CRAFT (PBF)

G 01-36 **C 101-01** **C 2001-01** **+14**

Dimensions, feet (metres): 22.3 × 7.5 × 1 *(6.8 × 2.3 × 0.3)*
Main machinery: 2 Johnson outboards; 280 hp *(209 kW)*
Speed, knots: 40. **Range, miles:** 190 at 40 kt
Complement: 2
Guns: 1 or 2—7.62 mm MGs.

Comment: Details are for the 36 G 01-36 'Piraña' class. Acquired in 1993/94. C 101-01 is the 50 kt 'Interceptor' class launch carried in *Démocrata* and C 2001-01 can be embarked in *Benito Juarez*. More are to be acquired as OPVs enter service. There are also ten 29 ft Mako Marine craft, with twin Mercury outboards acquired in 1995. Five Sea Force 730 RIBs with Hamilton water-jets, also acquired in 1995-96.

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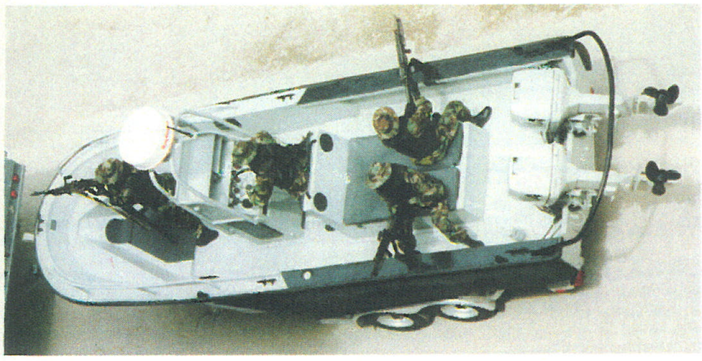
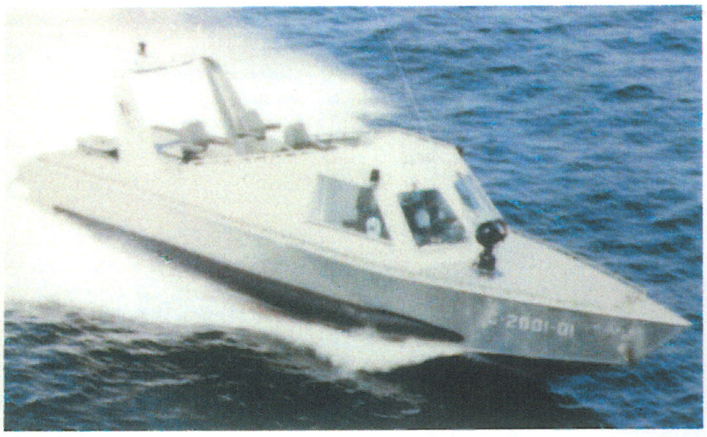
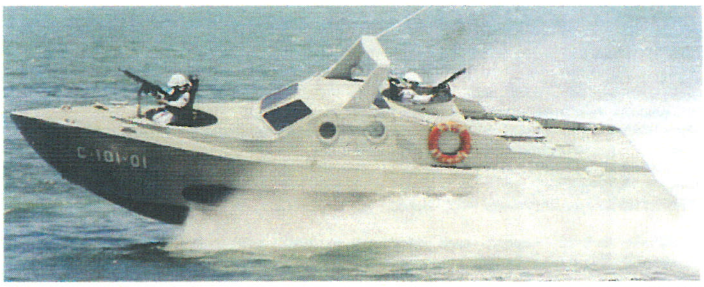


PIRAÑA CLASS *9/2002, Julio Montes* / 0533285



C 2001-01 *6/2000, Mexican Navy* / 0114536



C 101-01 *7/1998, Mexican Navy* / 0052610

0 + 8 ACUARIO CLASS (COMBATBOAT 90HMN) (PBF)

ACUARIO	PI 1301
AGUILA	PI 1302
ARIES	PI 1303
AURIGA	PI 1304
CANCER	PI 1305
CAPRICORNO	PI 1306
CENTAURO	PI 1307
GEMINIS	PI 1308

Displacement, tons: 19 full load
Dimensions, feet (metres): 52.2 × 12.5 × 2.6 *(15.9 × 3.8 × 0.8)*
Main machinery: 2 CAT 3406E diesels; 1,605 hp(m) *(1.18 MW)*; 2 waterjets
Speed, knots: 47. **Range, miles:** 240 at 30 kt
Complement: 4
Guns: 1—12.7 mm MG.
Radars: Surface search: Litton Decca Bridgemaster E; I-band.

Comment: A further development of the 'Polaris' class which are based on the Swedish 'Combatboat 90'. To be delivered in 2004. All named after stars.

NEW ENTRY

SURVEY AND RESEARCH SHIPS

1 ONJUKU CLASS (SURVEY SHIP) (AGS)

Name	*No*	*Builders*	*Commissioned*
ONJUKU	BI 02 (ex-H 04)	Uchida Shipyard	10 Jan 1980

Displacement, tons: 494 full load
Dimensions, feet (metres): 121 × 26.2 × 11.5 *(36.9 × 8 × 3.5)*
Main machinery: 1 Yanmar 6UA-UT diesel; 700 hp(m) *(515 kW)*; 1 shaft
Speed, knots: 12. **Range, miles:** 5,645 at 10.5 kt
Complement: 20 (4 officers)
Radars: Navigation: Furuno; I-band.
Sonars: Furuno; hull-mounted; high frequency active.

Comment: Launched 9 December 1977 in Japan. Sonar is a fish-finder type. New pennant number in 2001. Based at Tampico.

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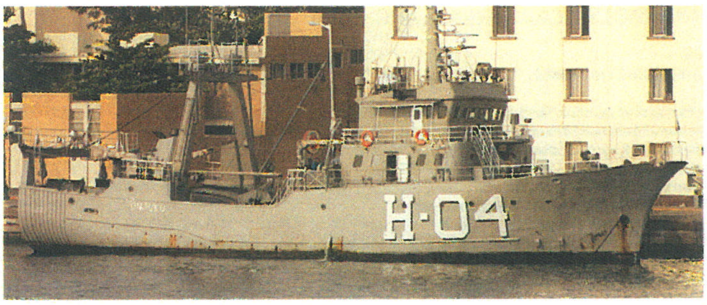


ONJUKU (old number) *4/1999, van Ginderen Collection* / 0081256

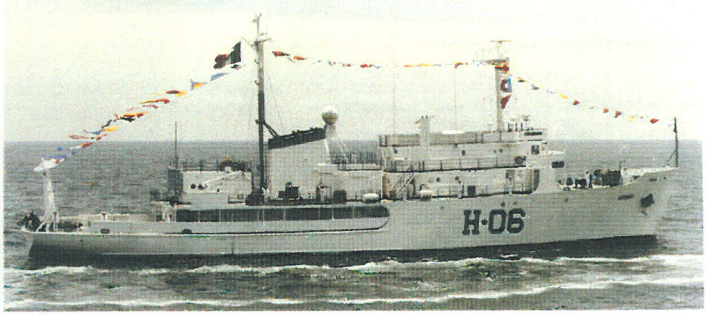
2 ROBERT D CONRAD CLASS (RESEARCH SHIPS) (AGOR)

Name	*No*	*Builders*	*Commissioned*
ALTAIR (ex-*James M Gilliss*)	BI 03 (ex-H 05, ex-AGOR 4)	Christy Corp, WI	5 Nov 1962
ANTARES (ex-*S P Lee*)	BI 04 (ex-H 06, ex-AG 192)	Defoe, Bay City	2 Dec 1962

Displacement, tons: 1,370 full load
Dimensions, feet (metres): 208.9 × 40 × 15.4 *(63.7 × 12.2 × 4.7)*
Main machinery: Diesel-electric; 2 Caterpillar diesel generators; 1,200 hp *(895 kW)*; 2 motors; 1,000 hp *(746 kW)*; 1 shaft; bow thruster
Speed, knots: 13.5. **Range, miles:** 10,500 at 10 kt
Complement: 41 (12 officers) plus 15 scientists
Radars: Navigation: Raytheon 1025; Raytheon R4iY; I-band.

Comment: *Altair* leased from US 14 June 1983. Refitted and modernised in Mexico. Recommissioned 27 November 1984. Primarily used for oceanography. *Antares* served as an AGI with the USN until February 1974 when she transferred on loan to the Geological Survey. Acquired by sale 1 December 1992. New pennant numbers in 2001.

VERIFIED



ANTARES (old number) *6/2001, Mexican Navy* / 0114672

1 ARRECIFE (ex-OLMECA II) CLASS (SURVEY CRAFT) (YGS)

ALACRAN BI 08

Displacement, tons: 18 full load
Dimensions, feet (metres): 54.8 × 14.4 × 3.9 *(16.7 × 4.4 × 1.2)*
Main machinery: 2 Detroit 8V-92TA diesels; 700 hp *(562 kW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 460 at 10 kt
Complement: 15 (2 officers)
Guns: 1—12.7 mm MG.
Radars: Navigation: Raytheon 1900; I-band.

Comment: Built at Acapulco and completed in 1982. GRP hulls. Converted for inshore hydrographic duties in 2003.

NEW ENTRY

1 SURVEY SHIP (AGS)

Name	*No*	*Builders*	*Commissioned*
RIO ONDO (ex-*Deer Island*)	BI 06 (ex-H 08, ex-A 26, ex-YAG 62)	Halter Marine	May 1962

Displacement, tons: 400 full load
Dimensions, feet (metres): 120.1 × 27.9 × 6.9 *(36.6 × 8.5 × 2.1)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 10. **Range, miles:** 6,000 at 10 kt
Complement: 20

Comment: Acquired from US on 2 August 1996 and adapted for a support ship role in 1997. Converted to Survey Ship in 1999. Used in US service from 1983 as an acoustic research ship to test noise reduction equipment. Started life as an oil rig supply tug. New pennant number in 2001.

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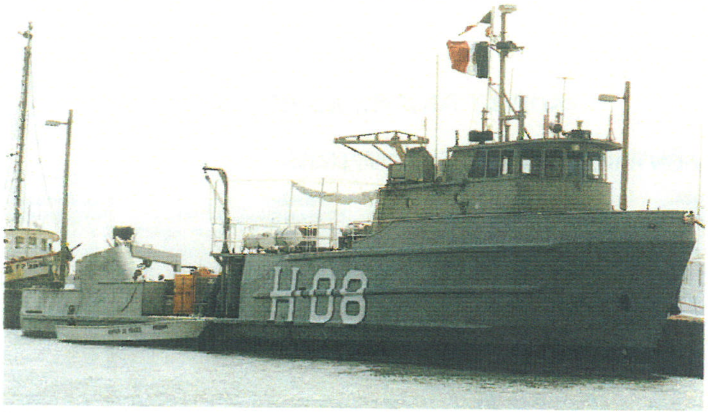

RIO ONDO (old number) *4/1999, M Declerck* / 0081258

1 HUMBOLT CLASS (RESEARCH SHIP) (AGOR)

Name	*No*	*Builders*	*Recommissioned*
ALEJANDRO DE HUMBOLT	BI 01 (ex-H 03)	JG Hitzler, Elbe	22 June 1987

Displacement, tons: 585 standard; 700 full load
Dimensions, feet (metres): 140.7 × 32 × 13.5 *(42.3 × 9.6 × 4.1)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 14
Complement: 20 (4 officers)
Radars: Navigation: Kelvin Hughes; I-band.

Comment: Former trawler built in Germany and launched in January 1970. Converted in 1982 to become a hydrographical and acoustic survey ship. Based at Sinaloa. New pennant number in 2001.

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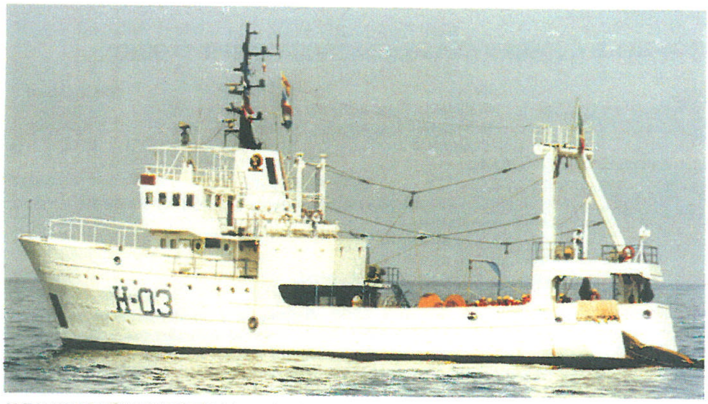


ALEJANDRO DE HUMBOLT (old number) *6/2001, Mexican Navy* / 0114671

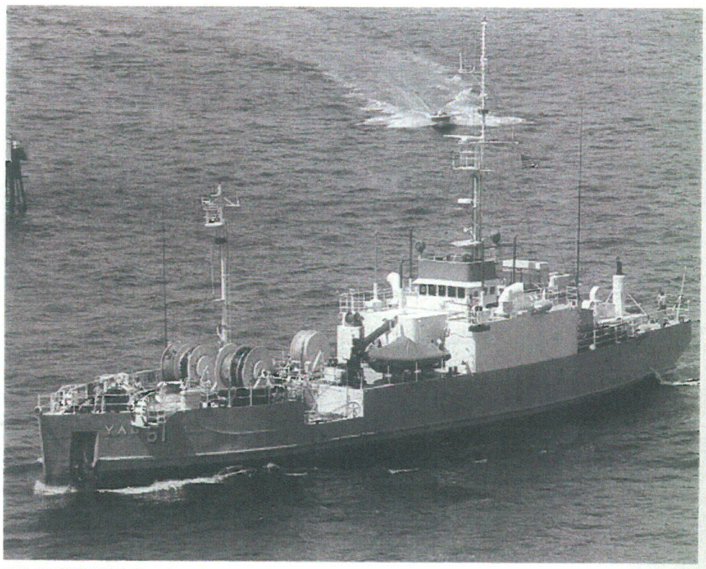
1 SUPPORT SHIP (AKS)

Name	*No*	*Builders*	*Commissioned*
RIO SUCHIATE (ex-*Monob 1*)	BI 05 (ex-A 27, ex-YAG 61, ex-YW 87)	Zenith Dredge Co	11 Nov 1943

Displacement, tons: 1,390 full load
Dimensions, feet (metres): 191.9 × 33.1 × 15.7 *(58.5 × 10.1 × 4.8)*
Main machinery: 1 Caterpillar D 398 diesel; 850 hp *(634 kW)*; 1 shaft
Speed, knots: 9. **Range, miles:** 2,500 at 9 kt
Complement: 21

Comment: Acquired from US on 2 August 1996. The ship was converted from a water carrier to an acoustic research role in 1969, and had four laboratories in US service. Adapted to act also in support ship role in 1997. New pennant number in 2001.

VERIFIED



RIO SUCHIATE (US colours) *7/1988, Giorgio Arra*

AUXILIARIES

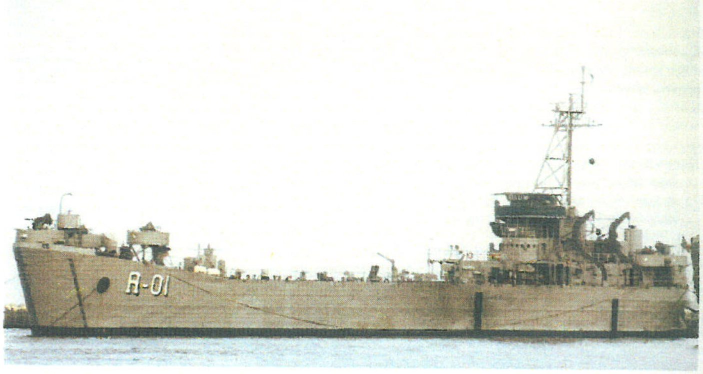
3 TRANSPORT SHIPS (AP)

Name	*No*	*Builders*	*Commissioned*
RIO PANUCO (ex-*Park County*)	A 401 (ex-A 01)	Bethlehem Steel	8 May 1945
MANZANILLO (ex-*Clearwater County*)	A 402 (ex-A 02)	Chicago Bridge & Iron Co	31 Mar 1944
VICENTE GUERRERO ex-*Magara*)	A 403 (ex-A 03)	American Bridge	27 June 1945

Displacement, tons: 4,080 full load
Dimensions, feet (metres): 328 × 50 × 14 *(100 × 15.3 × 4.3)*
Main machinery: 2 GM 12-567A diesels; 1,800 hp *(1.34 MW)*; 2 shafts
Speed, knots: 11. **Range, miles:** 6,000 at 11 kt
Complement: 250
Guns: 8 Bofors 40 mm (2 twin, 4 single).

Comment: Details are for two ex-US 'LST 452' class transferred 10 September 1971 (A 401) and 17 June 1972 (A 402). Ex-US 'Fabius' class (A 403) transferred on 10 October 1973. Deployed also as SAR and disaster relief ships.

UPDATED



RIO PANUCO (old number) *7/1991, Harald Carstens* / 0081259

1 LOGISTIC SUPPORT SHIP (AKS)

Name	*No*	*Builders*	*Recommissioned*
MAYA (ex-*Rio Nautla*)	ATR 01 (ex-A 20, ex-A 23)	Isla Gran Cayman, Ru	1 June 1988

Displacement, tons: 924 full load
Dimensions, feet (metres): 160.1 × 38.7 × 16.1 *(48.8 × 11.8 × 4.9)*
Main machinery: 1 MAN diesel; 1 shaft
Speed, knots: 12
Complement: 15 (8 officers)

Comment: First launched in 1962 and acquired for the Navy in 1988. Unarmed. New name and pennant number in 2001.

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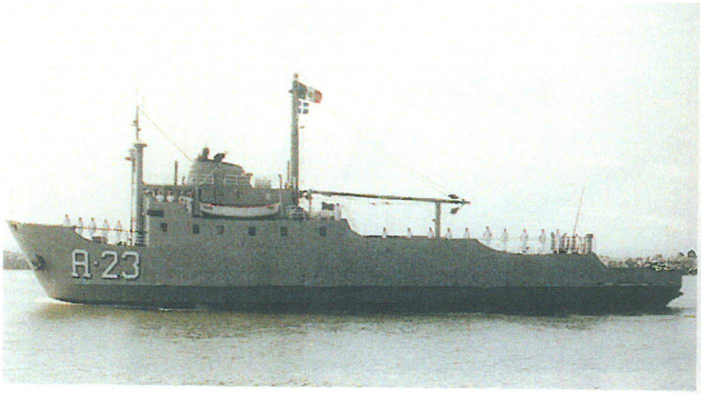


MAYA (old number) *1989, Mexican Navy* / 0081263

2 NEWPORT CLASS (TRANSPORT SHIPS) (APH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*Recommissioned*
RIO PAPALOAPAN (ex-*Sonora*, ex-*Newport*)	A 411 (ex-A-04, ex-LST-1179)	Philadelphia Naval Shipyard	1 Nov 1966	3 Feb 1968	7 June 1969	23 May 2001
USUMACINTA (ex-*Frederick*)	A 412 (ex-LST-1184)	National Steel & Shipbuilding Co	13 Apr 1968	8 Mar 1969	11 Apr 1970	9 Dec 2002

Displacement, tons: 4,975 light; 8,450 full load
Dimensions, feet (metres): 522.3 (hull) × 69.5 × 17.5 (aft) *(159.2 × 21.2 × 5.3)*
Main machinery: 6 General Motors 16-645-E5 diesels; 16,500 hp *(12.3 MW)* sustained; 2 shafts; cp props; bow thruster

Speed, knots: 20. **Range, miles:** 14,250 at 14 kt
Complement: 257 (13 officers)
Radars: Surface search: Raytheon SPS-10F; G-band. Navigation: Raytheon SPS-64; I-band.

Helicopters: Platform only.

Programmes: A-411 sold to Mexico by the US Navy on 18 January 2001. A-412 sold on 9 December 2002. Both ships employed as transport ships. Capable of carrying 2,000 tons of cargo.

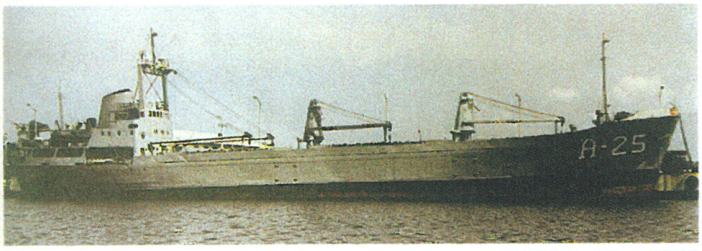
NEW ENTRY

1 LOGISTIC SUPPORT SHIP (AK)

Name	*No*	*Builders*	*Recommissioned*
TARASCO (ex-*Rio Lerma*, ex-*Sea Point*, ex-*Tricon*, ex-*Marika*, ex-*Arneb*)	ATR 03 (ex-A 22, A 25)	Solvesborg, Sweden	1 Mar 1990

Displacement, tons: 1,970 full load
Dimensions, feet (metres): 282.2 × 40.7 × 16.1 *(86 × 12.4 × 4.9)*
Main machinery: 1 Kloeckner Humboldt Deutz diesel; 2,100 hp(m) *(1.54 MW)*; 1 shaft
Speed, knots: 14
Complement: 35
Cargo capacity: 778 tons

Comment: Built in 1962 as a commercial ship and taken into the Navy in 1990. New name and pennant number in 2001. ***VERIFIED***



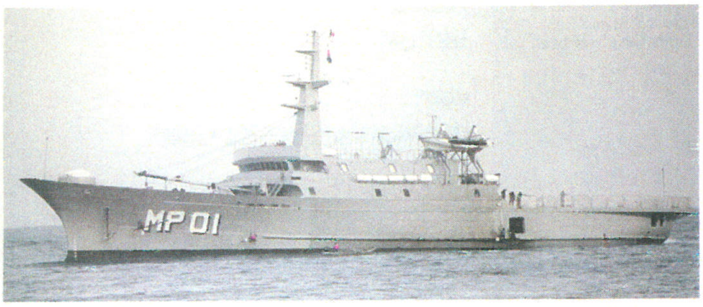
TARASCO (old number) ***1990, Mexican Navy*** / 0081260

2 HUASTECO CLASS (APH/AK/AH)

Name	*No*	*Builders*	*Commissioned*
HUASTECO (ex-*Rio Usumacinta*)	AMP 01 (ex-A 10, ex-A 21)	Tampico, Tampa	21 May 1986
ZAPOTECO (ex-*Rio Coatzacoalcos*)	AMP 02 (ex-A11, ex-A 22)	Salina Cruz	1 Sep 1986

Displacement, tons: 1,854 standard; 2,650 full load
Dimensions, feet (metres): 227 × 42 × 18.6 *(69.2 × 12.8 × 5.7)*
Main machinery: 1 GM-EMD diesel; 3,600 hp(m) *(2.65 MW)*; 1 shaft
Speed, knots: 14.5. **Range, miles:** 5,500 at 14 kt
Complement: 85 plus 300 passengers
Guns: 1 Bofors 40/60 Mk 3.
Radars: Navigation: I-band.
Helicopters: Platform for 1 MBB BO 105C.

Comment: Used in a training role but can also serve as troop transports, supply or hospital ships. New names and pennant numbers in 2001. ***UPDATED***



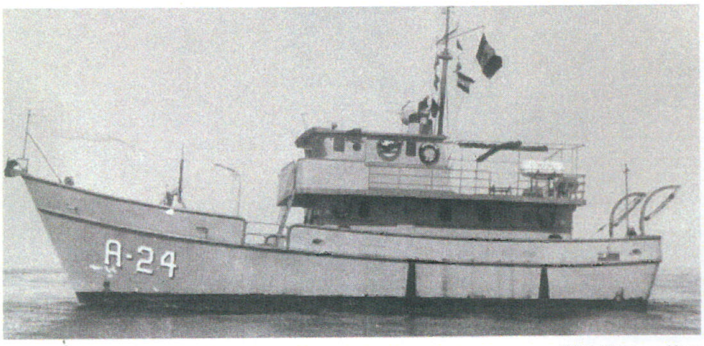
HUASTECO ***8/2002, Alexandre Sheldon-Duplaix*** / 0526829

1 LOGISTIC SUPPORT SHIP (AKSL)

Name	*No*	*Builders*	*Recommissioned*
PROGRESO (ex-*Rio Tonala*)	ATR 02 (ex-A 21, ex-A 24)	Angulo, Del Carmen	27 Mar 1989

Displacement, tons: 152 full load
Dimensions, feet (metres): 73.8 × 21.7 × 4.9 *(22.5 × 6.6 × 1.5)*
Main machinery: 1 diesel; 1 shaft
Speed, knots: 10
Complement: 10
Cargo capacity: 57 tons

Comment: First commissioned 27 February 1985. Converted in 1988 and taken into the Navy in 1989. New name and pennant number in 2001. ***VERIFIED***



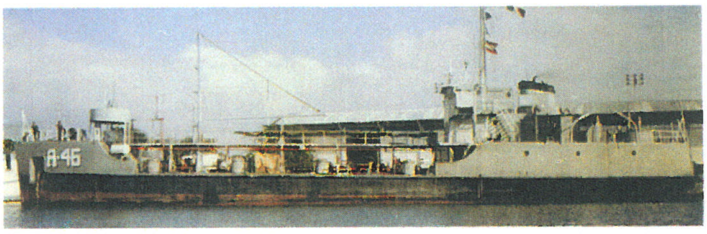
PROGRESO (old number) ***1992, Mexican Navy***

2 AGUASCALIENTES CLASS (YOG/YO)

Name	*No*	*Builders*	*Recommissioned*
AGUASCALIENTES (ex-*Las Choapas*)	ATQ 01 (ex-A 45, ex-A 03)	Geo H Mathis Co Ltd,	25 Nov 1964
TLAXCALA (ex-*Amatlan*)	ATQ 02 (ex-A 46, ex-A 04)	Geo Lawley & Son, Neponset, MA	25 Nov 1964

Displacement, tons: 895 standard; 1,480 full load
Dimensions, feet (metres): 159.2 × 32.9 × 13.3 *(48.6 × 10 × 4.1)*
Main machinery: 1 Fairbanks-Morse diesel; 500 hp *(373 kW)*; 1 shaft
Speed, knots: 6
Complement: 26 (5 officers)
Cargo capacity: 6,570 barrels
Guns: 1 Oerlikon 20 mm.

Comment: Former US self-propelled fuel oil barges built in 1943. Purchased in August 1964. New names and pennant numbers in 2001. ***VERIFIED***



TLAXCALA (old number) ***6/1994, Mexican Navy*** / 0081265

4 FLOATING DOCKS

ADI 01 (ex-US ARD 2)
ADI 02 (ex-US ARD 15)
ADI 03 (ex-US AFDL 28)
ADI 04 (ex-US ARD 11)

Comment: ARD 2 (150 × 24.7 m) transferred 1963 and ARD 11 (same size) 1974 by sale. Lift 3,550 tons. Two 10 ton cranes and one 100 kW generator. ARD 15 has the same capacity and facilities-transferred 1971 by lease. AFDL 28 built in 1944, transferred 1973. Lift, 1,000 tons. ARD 30 transferred on 20 March 2001. ***VERIFIED***

17 DREDGERS (YM)

BANDERAS ADR 01 (ex-D 01)
MAGDALENA ADR 02 (ex-D 02)
KINO ADR 03 (ex-D 03)
YAVAROS ADR 04 (ex-D 04)
CHAMELA ADR 05 (ex-D 05)
TEPOCA ADR 06 (ex-D 06)
TODO SANTOS ADR 07 (ex-D 21)
ASUNCION ADR 08 (ex-D 22)
ALMEJAS ADR 09 (ex-D 23)
CHACAGUA ADR 10 (ex-D 24)
COYUCA ADR 11 (ex-D 25)
FARRALLON ADR 12 (ex-D 26)
CHAIREL ADR 13 (ex-D 27)
SAN ANDRES ADR 14 (ex-D 28)
SAN IGNACIO ADR 15 (ex-D 29)
TERMINOS ADR 16 (ex-D 30)
TECULAPA ADR 17 (ex-D 31)

Comment: Ships vary in size from 113 m *Kino* to 8 m *Terminos*. Most were taken over by the navy from the Transport Ministry in 1994. ***VERIFIED***

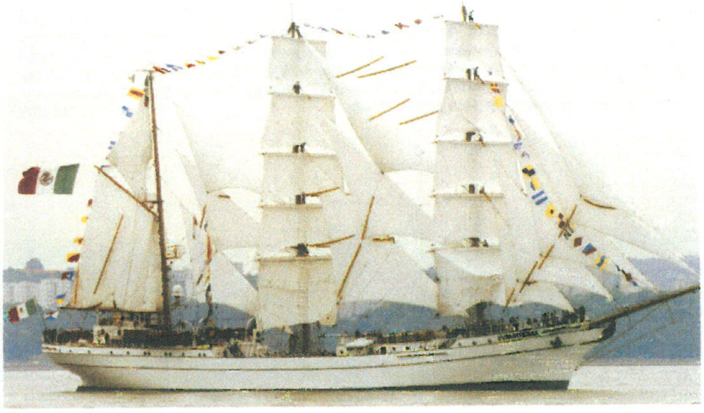
TRAINING SHIPS

1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
CUAUHTÉMOC	BE 01 (ex-A 07)	Astilleros Talleres Calaya SA, Bilbao	9 Jan 1982	23 Sep 1982

Displacement, tons: 1,662 full load
Dimensions, feet (metres): 296.9 (bowsprit); 220.5 wl × 39.4 × 17.7 *(90.5; 67.2 × 12 × 5.4)*
Main machinery: 1 Detroit 12V-149T diesel; 1,125 hp *(839 kW)*; 1 shaft
Speed, knots: 17 sail; 7 diesel
Complement: 268 (20 officers, 90 midshipmen)
Guns: 2—65 mm Schneider Model 1902 saluting guns.

Comment: Has 2,368 m² of sail. Similar ships in Ecuador, Colombia and Venezuela. ***UPDATED***



CUAUHTÉMOC ***7/2003*, J Ciślak*** / 0567900

1 ADMIRABLE CLASS (SUPPORT SHIP) (AKS)

Name	*No*	*Builders*	*Launched*
ALDEBARÁN (ex-DM 20, ex-*Harlequin* AM 365, ex-ID-20)	BE 02 (ex-A 08, ex-N 02)	Willamette Iron & Steel	28 Sep 1945

Displacement, tons: 804 full load
Dimensions, feet (metres): 184.5 × 33 × 14.5 *(56.3 × 10.1 × 4.4)*
Main machinery: 4 Cooper-Bessemer GSB-8 diesels; 1,710 hp *(1.26 MW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 4,300 at 10 kt
Complement: 62 (12 officers)
Guns: 1—3 in *(76 mm)*/50 Mk 22. 4—7.62 mm MGs.
Radars: Navigation: Kelvin Hughes; I-band.

Comment: Acquired in 1962 and converted for survey work in 1978. Converted again as a training ship in 1999 and re-armed.
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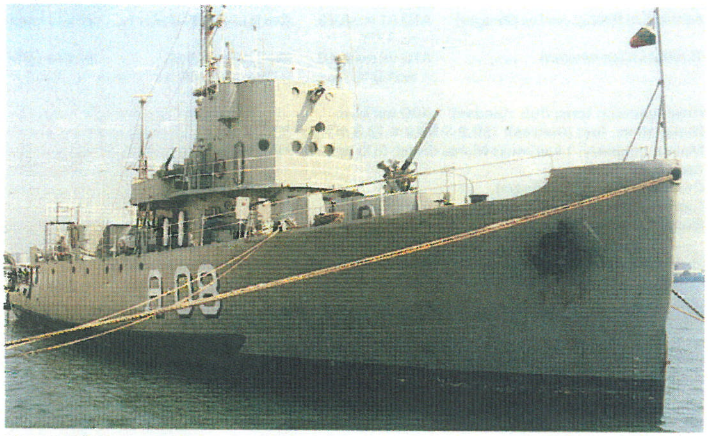


ALDEBARÁN (old number) *4/1999, M Declerck* / 0081264

1 SAIL TRAINING SHIP (AXS)

MOCTEZUMALL BE 03

Displacement, tons: 150 full load
Dimensions, feet (metres): 108.3 × 20.3 × 13.1 *(33.0 × 6.2 × 4.0)*
Complement: 17

Comment: Two-masted sailing vessel built in 1972 and taken over by the Navy on 6 December 1985.
NEW ENTRY

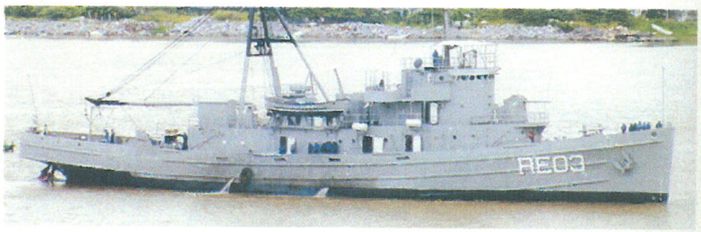
TUGS

4 ABNAKI CLASS (ATF)

Name	*No*	*Builders*	*Commissioned*
OTOMI (ex-*Kukulkan*, ex-*Molala* ATF 106)	ARE 01 (ex-A 52, ex-A 17)	United Eng Co, Alameda, CA	29 Sep 1943
YAQUI (ex-*Ehacatl*, ex-*Abnaki* ATF 96)	ARE 02 (ex-A 53, ex-A 18)	Charleston SB and DD Co	15 Nov 1943
SERI (ex-*Tonatiuh*, ex-*Cocopa* ATF 101)	ARE 03 (ex-A 54, ex-A 19)	Charleston SB and DD Co	25 Mar 1944
CORA (ex-*Chac*, ex-*Hitchiti* ATF 103)	ARE 04 (ex-A 55, ex-A 20)	Charleston SB and DD Co	27 May 1944

Displacement, tons: 1,640 full load
Dimensions, feet (metres): 205 × 38.5 × 17 *(62.5 × 11.7 × 5.2)*
Main machinery: Diesel-electric; 4 Busch-Sulzer BS-539 diesels; 6,000 hp *(4.48 MW)*; 4 generators; 1 motor; 3,000 hp(m) *(2.24 MW)*; 1 shaft
Speed, knots: 10. **Range, miles:** 6,500 at 10 kt
Complement: 75
Guns: 1 US 3 in *(76 mm)*/50 Mk 22.
Radars: Navigation: Marconi LN66; I-band.

Comment: *Otomi* transferred from US 27 September 1978, remainder 1 October 1978. All by sale. Speed reduced.
UPDATED



SERI *6/2003*, Mexican Navy* / 0567905

6 HARBOUR TUGS (YTL)

IZTACCIHUATL ARE 05 (ex-R-60)
POPOCATEPTL ARE 06 (ex-R-61)
CITLALTEPL ARE 07 (ex-R-62)
XINANTECATL ARE 08 (ex-R-63)
MATLALCUEYE ARE 09 (ex-R-64)
TLALOC ARE 10 (ex-R-65)

Displacement, tons: 140 full load
Dimensions, feet (metres): 73.8 × 22.3 × 9.8 *(22.5 × 6.8 × 3.0)*
Complement: 12

Comment: Details are for ARE 05 taken over by the Navy on 1 November 1994. ***NEW ENTRY***

Federated States of Micronesia

Country Overview

The Federated States of Micronesia was a US-administered UN Trust territory from 1947 before becoming a self-governing republic in 1979. In 1986, a Compact of Free Association, delegating to the US the responsibility for defence and foreign affairs, came into effect. Composed of the states of Pohnpei (location of capital, Palikir), Kosrae, Chuuk, and Yap, the country consists of 607 islands in the western Pacific Ocean which extend 1,566 n miles across the Caroline Islands archipelago. Moen Island in Chuuk, is the largest community. Territorial seas (12 n miles) are claimed. An Exclusive Economic Zone (EEZ) (200 n miles) is also claimed but limits have not been fully defined.

Headquarters Appointments

Maritime Wing Commander:
Commander Robert Maluweirang

Personnel

2004: 120

Bases

Kolonia (main base), Kosral, Moen, Takatik.

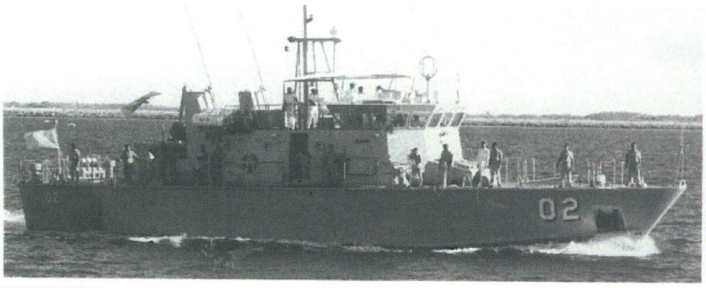
PATROL FORCES

3 PACIFIC CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
PALIKIR	FSM 01	Australian Shipbuilding Industries	28 Apr 1990
MICRONESIA	FSM 02	Australian Shipbuilding Industries	3 Nov 1990
INDEPENDENCE	FSM 05	Transfield	22 May 1997

Displacement, tons: 162 full load
Dimensions, feet (metres): 103.3 × 26.6 × 6.9 *(31.5 × 8.1 × 2.1)*
Main machinery: 2 Caterpillar 3516TA diesels; 4,400 hp *(3.28 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 2,500 at 12 kt
Complement: 17 (3 officers)
Radars: Surface search: Furuno 1011; I-band.

Comment: First pair ordered in June 1989 from Australian Shipbuilding Industries. Training and support provided by Australia at Port Kolonia. Third of class negotiated with Transfield (former ASI) in 1997. Following the decision by the Australian government to extend the Pacific Patrol Boat programme to enable 30-year boat lives, *Palikir* and *Micronesia*, which underwent half-life refits in 1998 and 1999, will be due life extension refits in 2006 and 2007 respectively. *Independence* completed a half-life refit in 2003.
UPDATED



MICRONESIA *11/1990, Royal Australian Navy*

2 CAPE CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
PALUWLAP (ex-*Cape Cross*)	FSM 03	Coast Guard Yard, Curtis Bay	20 Aug 1958
CONSTITUTION (ex-*Cape Corwin*)	FSM 04	Coast Guard Yard, Curtis Bay	14 Nov 1958

Displacement, tons: 148 full load
Dimensions, feet (metres): 95 × 20.2 × 6.6 *(28.9 × 6.2 × 2)*
Main machinery: 2 GM 16V-149TI diesels; 2,070 hp *(1.54 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 2,500 at 10 kt
Complement: 14 (3 officers)
Guns: 2—12.7 mm MGs. 2—40 mm mortars.
Radars: Surface search: Raytheon SPS-64; I-band.

Comment: Two former Coast Guard ships transferred from US on loan in March and September 1991. Re-engined in 1982 and now restricted in speed.
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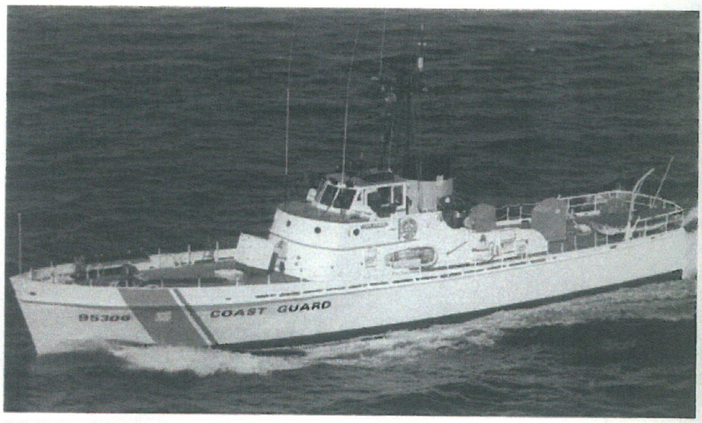

CAPE class (USCG colours) *1990*

Morocco
MARINE ROYALE MAROCAINE

Country Overview

Formerly divided into French and Spanish protectorates, the Kingdom of Morocco gained independence in 1956. Situated in north-western Africa, it has an area of 172,414 square miles and is bordered to the east by Algeria; it occupies 80 per cent of Western Sahara (formerly Spanish Sahara), the country to the south. Two Spanish exclaves, Ceuta and Melilla, are located on the Mediterranean coast. It has coastlines with Atlantic Ocean (756 n miles) and Mediterranean Sea (238 n miles). The capital is Rabat while Casablanca is the largest city and principal port. Other ports are at Tangier, Agadir, Kenitra, Mohammedia, and Safi. Territorial seas (12 n miles) are claimed. An EEZ (200 n mile) has also been claimed but its limits have not been fully defined.

Headquarters Appointments

Inspector of the Navy:
Captain Mohammed Triki

Personnel

(a) 2004: 7,800 officers and ratings (including 1,500 Marines)
(b) 18 months' national service

Bases

Casablanca (HQ), Safi, Agadir, Kenitra, Tangier, Dakhla, Al Hoceima

Aviation

The Ministry of Fisheries operates 11 Pilatus Britten-Norman Defender maritime surveillance aircraft.

FRIGATES

2 FLOREAL CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
MOHAMMED V	611	Chantiers de L'Atlantique, St Nazaire	June 1999	9 Mar 2001	12 Mar 2002
HASSAN II	612	Chantiers de L'Atlantique, St Nazaire	Dec 1999	11 Feb 2002	20 Dec 2002

Displacement, tons: 2,950 full load
Dimensions, feet (metres): 306.8 × 45.9 × 14.1 *(93.5 × 14 × 4.3)*
Main machinery: CODAD; 4 SEMT-Pielstick 6 PA6 L 280 diesels; 9,600 hp(m) *(7.06 MW)* sustained; 2 shafts; LIPS cp props; bow thruster; 340 hp(m) *(250 kW)*
Speed, knots: 20. **Range, miles:** 10,000 at 15 kt
Complement: 89 (11 officers)

Missiles: SSM: 2 Aerospatiale MM 38 Exocet ❶.
SAM: 2 Matra Simbad twin launchers ❷ can replace 20 mm guns or Dagaie launcher.
Guns: 1 Otobreda 76 mm/62 ❸.
2 Giat 20 F2 20 mm ❹.
Countermeasures: Decoys: 2 CSEE Dagaie Mk II ❺; 10-barrelled trainable launchers; chaff and IR flares.
ESM: Thomson-CSF ARBR 17 ❻; radar intercept.
Weapons control: CSEE Najir optronic director ❼.
Radars: Air/surface search: Thomson-CSF Mars DRBV 21A ❽; D-band.
Fire control: Thales WM28; I/J-band.
Navigation: 2 Decca Bridgemaster E ❾; I-band (1 for helicopter control).

Helicopters: 1 Aerospatiale AS 565MA Panther.

Programmes: Contract signed with Alstom on 12 July 1999. 611 delivered on 12 March 2002 and 612 on 20 December 2002.
Structure: Constructed to DNV standards. Very similar to ships in French service with 76 mm in place of 100 mm gun.

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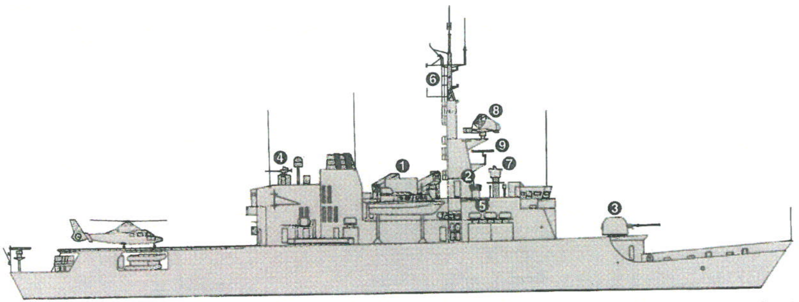
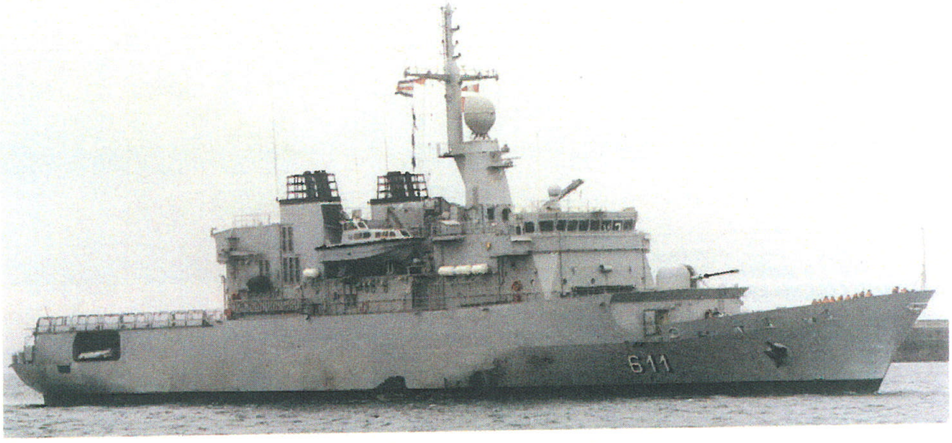
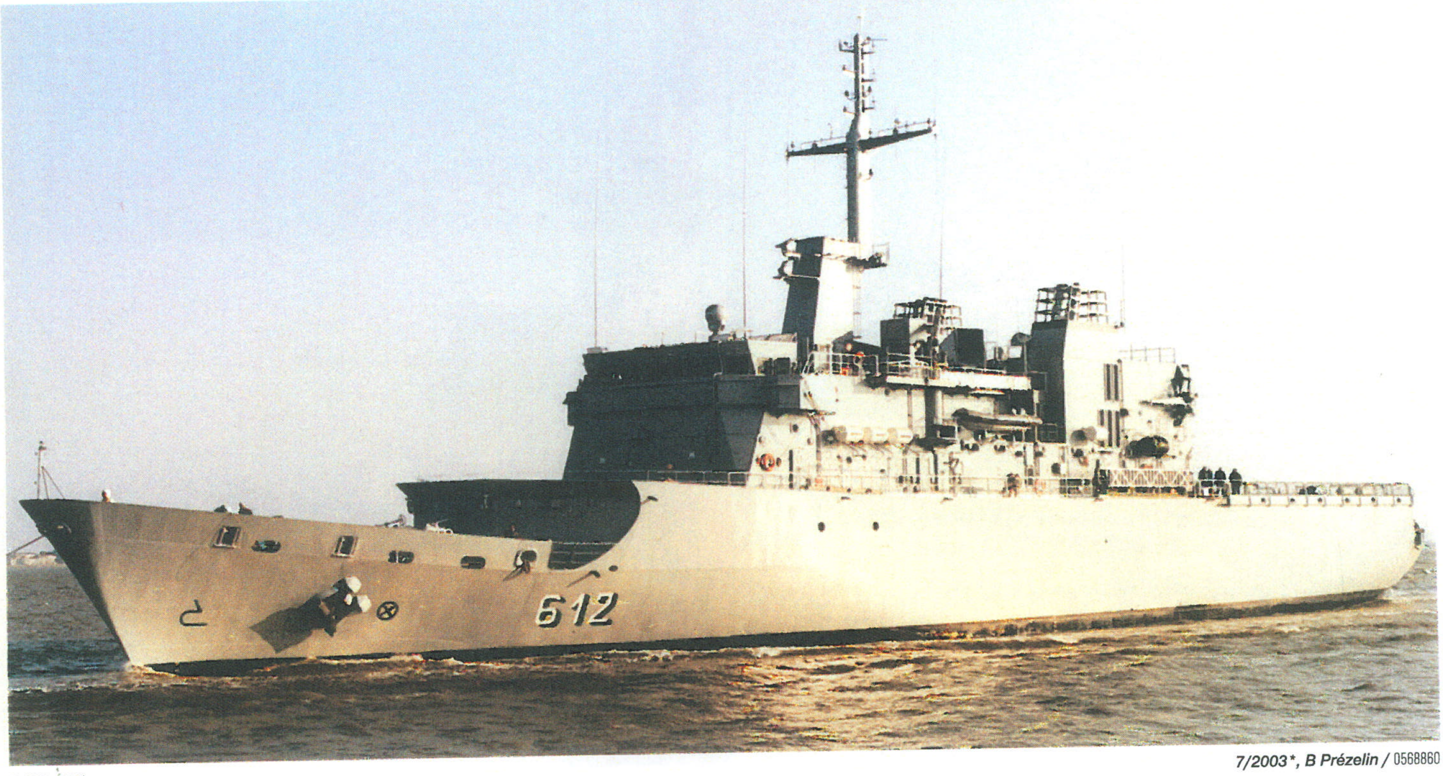


FLOREAL class *(Scale 1 : 900), Ian Sturton* / 0105133



MOHAMMED V
5/2003, B Prézelin* / 0568861



HASSAN II *7/2003*, B Prézelin* / 0568860

1 MODIFIED DESCUBIERTA CLASS (FFGM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
LIEUTENANT COLONEL ERRHAMANI	501	Bazán, Cartagena	20 Mar 1979	26 Feb 1982	28 Mar 1983

Displacement, tons: 1,233 standard; 1,479 full load
Dimensions, feet (metres): 291.3 × 34 × 12.5 *(88.8 × 10.4 × 3.8)*
Main machinery: 4 MTU-Bazán 16V 956 TB91 diesels; 15,000 hp(m) *(11 MW)* sustained; 2 shafts; cp props
Speed, knots: 25.5. **Range, miles:** 4,000 at 18 kt (1 engine)
Complement: 100

Missiles: SSM: 4 Aerospatiale MM 38 Exocet ❶; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer. Frequently not embarked.

SAM: Selenia/Elsag Albatros octuple launcher ❷; 24 Aspide; semi-active radar homing to 13 km *(8 n miles)* at 2.5 Mach; height envelope 15-5,000 m *(49.2-16,405 ft)*; warhead 30 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact ❸; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
2 Breda Bofors 40 mm/70 ❹; 300 rds/min to 12.5 km *(6.7 n miles)*; weight of shell 0.96 kg.

Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❺. Honeywell Mk 46 Mod 1; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
A/S mortars: 1 Bofors SR 375 mm twin trainable launcher ❻; range 3.6 km *(1.9 n miles)*; 24 rockets.
Countermeasures: Decoys: 2 CSEE Dagaie double trainable mounting; IR flares and chaff; H/J-band.
ESM/ECM: Elettronica ELT 715; intercept and jammer.
Combat data systems: Signaal SEWACO-MR action data automation. SATCOM.
Radars: Air/surface search: Signaal DA05 ❼; E/F-band (see *Operational*).
Surface search: Signaal ZW06 ❽; I-band.
Fire control: Signaal WM25/41 ❾; I/J-band; range 46 km *(25 n miles)*.
Sonars: Raytheon DE 1160 B; hull-mounted; active/passive; medium range; medium frequency.

Programmes: Ordered 7 June 1977.
Modernisation: New 40 mm guns fitted in 1995. Refit in Spain in 1996.
Operational: The ship is fitted to carry Exocet but the missiles are seldom embarked. The air search radar was removed in 1998 but reinstated in 1999.

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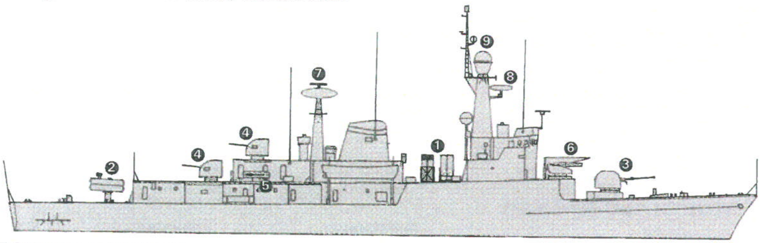
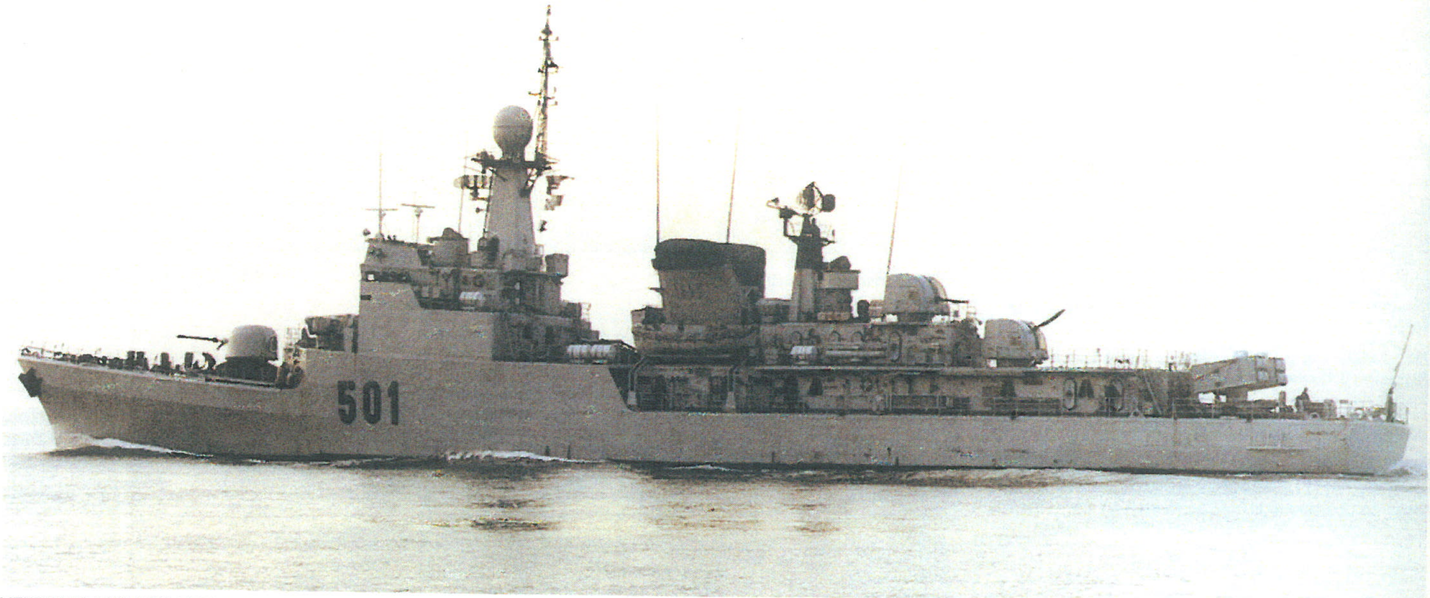


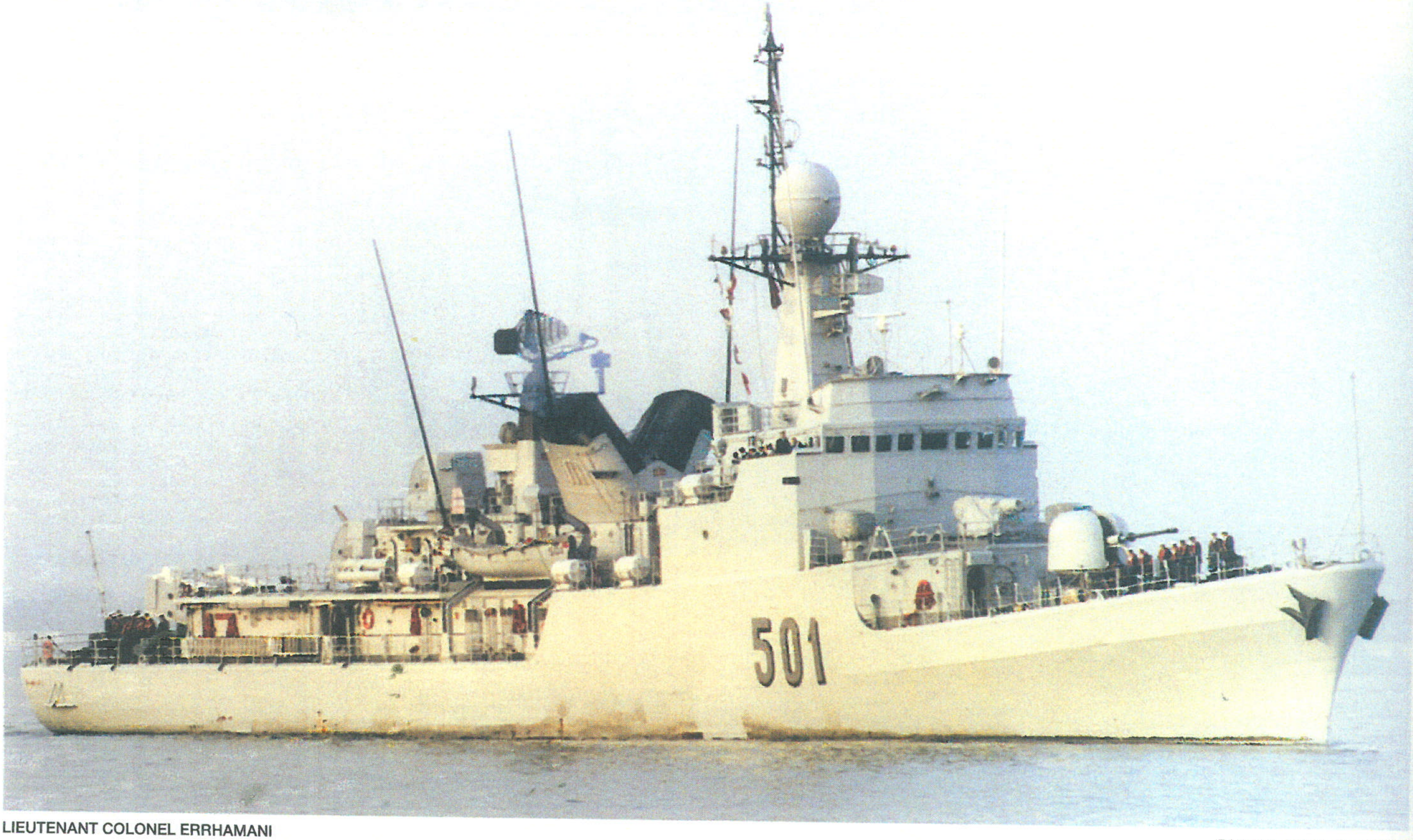
LIEUTENANT COLONEL ERRHAMANI

(Scale 1 : 900), Ian Sturton



LIEUTENANT COLONEL ERRHAMANI

5/2003, B Prézelin* / 0568859



LIEUTENANT COLONEL ERRHAMANI

5/2003, B Prézelin* / 0568858

SHIPBORNE AIRCRAFT

Numbers/Type: 3 Aerospatiale AS 565MA Panther.
Operational speed: 165 kt *(305 km/h)*.
Service ceiling: 16,700 ft *(5,100 m)*.
Range: 483 n miles *(895 km)*.
Role/Weapon systems: Procured from France for operation from 'Floréal' class. Sensors: Thomson-CSF Varan radar. FLIR. Weapons: 7.62 mm MG.

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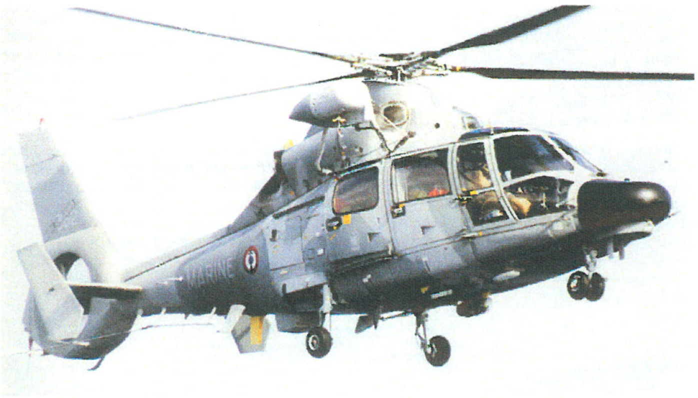

PANTHER (French colours) *9/1998, M Declerck* / 0052167

PATROL FORCES

4 LAZAGA CLASS (FAST ATTACK CRAFT—MISSILE) (PGG)

Name	*No*	*Builders*	*Commissioned*
EL KHATTABI	304	Bazán, San Fernando	26 July 1981
COMMANDANT BOUTOUBA	305	Bazán, San Fernando	2 Aug 1982
COMMANDANT EL HARTY	306	Bazán, San Fernando	20 Nov 1981
COMMANDANT AZOUGGARH	307	Bazán, San Fernando	25 Feb 1982

Displacement, tons: 425 full load
Dimensions, feet (metres): 190.6 × 24.9 × 8.9 *(58.1 × 7.6 × 2.7)*
Main machinery: 2 MTU-Bazán 16V 956 TB91 diesels; 7,500 hp(m) *(5.51 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 3,000 at 15 kt
Complement: 41
Missiles: SSM: 4 Aerospatiale MM 38 Exocet; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
1 Breda Bofors 40 mm/70; 300 rds/min to 12.5 km *(6.7 n miles)*; weight of shell 0.96 kg.
2 Oerlikon 20 mm/90 GAM-BO1; 800 rds/min to 2 km.
Weapons control: CSEE Panda optical director.
Radars: Surface search: Signaal ZW06; I-band; range 26 km *(14 n miles)*.
Fire control: Signaal WM25; I/J-band; range 46 km *(25 n miles)*.
Navigation: Furuno; I-band.

Comment: Ordered from Bazán, San Fernando (Cadiz), Spain 14 June 1977. New Bofors guns fitted aft in 1996/97. 76 mm gun removed from 305 in 1998.

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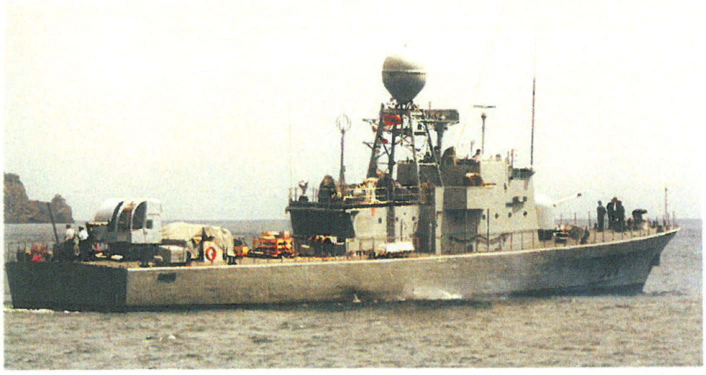

EL KHATTABI *8/1997, Diego Quevedo* / 0012784

COMMANDANT AZOUGGARH *9/2001* / 0525910

2 OKBA (PR 72) CLASS (LARGE PATROL CRAFT) (PG)

Name	*No*	*Builders*	*Commissioned*
OKBA	302	SFCN, Villeneuve la Garenne	16 Dec 1976
TRIKI	303	SFCN, Villeneuve la Garenne	12 July 1977

Displacement, tons: 375 standard; 445 full load
Dimensions, feet (metres): 188.8 × 25 × 7.1 *(57.5 × 7.6 × 2.1)*
Main machinery: 4 SACM AGO V16 ASHR diesels; 11,040 hp(m) *(8.11 MW)*; 4 shafts
Speed, knots: 28. **Range, miles:** 2,500 at 16 kt
Complement: 53 (5 officers)
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
1 Bofors 40 mm/70; 300 rds/min to 12.5 km *(6.7 n miles)*; weight of shell 0.96 kg.
Weapons control: 2 CSEE Panda optical directors.
Radars: Surface search: Racal Decca 1226; I-band.

Comment: Ordered June 1973. *Okba* launched 10 October 1975, *Triki* 1 February 1976. Can be Exocet fitted (with Vega control system).

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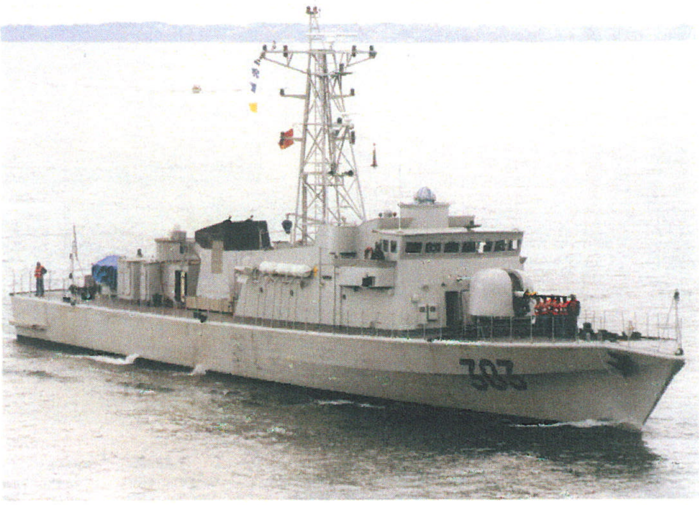

TRIKI *6/2003*, B Prézelin* / 0567899

4 OSPREY MK II CLASS (LARGE PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Commissioned*
EL HAHIQ	308	Danyard A/S, Frederickshaven	11 Nov 1987
EL TAWFIQ	309	Danyard A/S, Frederickshaven	31 Jan 1988
EL HAMISS	316	Danyard A/S, Frederickshaven	9 Aug 1990
EL KARIB	317	Danyard A/S, Frederickshaven	23 Sep 1990

Displacement, tons: 475 full load
Dimensions, feet (metres): 179.8 × 34 × 8.5 *(54.8 × 10.5 × 2.6)*
Main machinery: 2 MAN Burmeister & Wain Alpha 12V23/30-DVO diesels; 4,440 hp(m) *(3.23 MW)* sustained; 2 water-jets
Speed, knots: 22. **Range, miles:** 4,500 at 16 kt
Complement: 15 plus 20 spare berths
Guns: 1 Bofors 40 mm/60. 2 Oerlikon 20 mm.
Radars: Surface search; Racal Decca; I-band.
Navigation: Racal Decca; I-band.

Comment: First two ordered in September 1986; two more on 30 January 1989. There is a stern ramp with a hinged cover for launching the inspection boat. Used for Fishery Protection duties.

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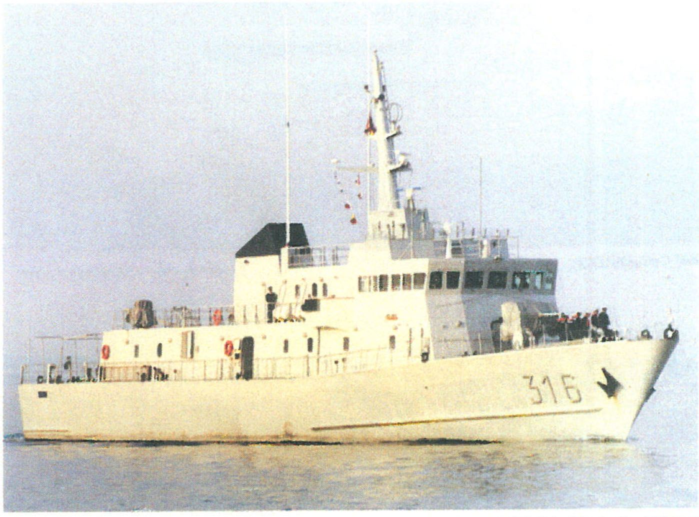

EL HAMISS *5/2002*, B Prézelin* / 0568856

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6 CORMORAN CLASS (LARGE PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Launched*	*Commissioned*
L V RABHI	310	Bázan, San Fernando	23 Sep 1987	16 Sep 1988
ERRACHIQ	311	Bázan, San Fernando	23 Sep 1987	16 Dec 1988
EL AKID	312	Bázan, San Fernando	29 Mar 1988	4 Apr 1989
EL MAHER	313	Bázan, San Fernando	29 Mar 1988	20 June 1989
EL MAJID	314	Bázan, San Fernando	21 Oct 1988	26 Sep 1989
EL BACHIR	315	Bázan, San Fernando	21 Oct 1988	19 Dec 1989

Displacement, tons: 425 full load
Dimensions, feet (metres): 190.6 × 24.9 × 8.9 *(58.1 × 7.6 × 2.7)*
Main machinery: 2 MTU-Bazán 16V 956 TB82 diesels; 8,340 hp(m) *(6.13 MW)* sustained; 2 shafts
Speed, knots: 22. **Range, miles:** 6,100 at 12 kt
Complement: 36 (4 officers) plus 15 spare
Guns: 1 Bofors 40 mm/70. 2 Giat 20 mm.
Weapons control: CSEE Lynx optronic director.
Radars: Surface search: Racal Decca; I-band.

Comment: Three ordered from Bazán, Cadiz in October 1985 as a follow on to the 'Lazaga' class of which these are a slower patrol version with a 10 day endurance. Option on three more taken up. Used for fishery protection.

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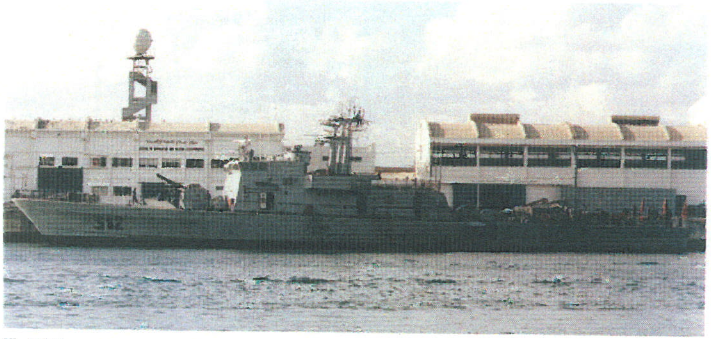

EL AKID *10/1999, M Declerck* / 0105136

5 RAÏS BARGACH CLASS (TYPE OPV 64) (PSO)

Name	*No*	*Builders*	*Launched*	*Commissioned*
RAÏS BARGACH	318	Leroux & Lotz, Lorient	9 Oct 1995	14 Dec 1995
RAÏS BRITEL	319	Leroux & Lotz, Lorient	19 Mar 1996	14 May 1996
RAÏS CHARKAOUI	320	Leroux & Lotz, Lorient	25 Sep 1996	10 Dec 1996
RAÏS MAANINOU	321	Leroux & Lotz, Lorient	7 Mar 1997	21 May 1997
RAÏS AL MOUNASTIRI	322	Leroux & Lotz, Lorient	15 Oct 1997	17 Dec 1997

Displacement, tons: 580 full load
Dimensions, feet (metres): 210 × 37.4 × 9.8 *(64 × 11.4 × 3)*
Main machinery: 2 Wärtsilä Nohab 25 V16 diesels; 10,000 hp(m) *(7.36 MW)* sustained; 2 Leroy auxiliary motors; 326 hp(m) *(240 kW)*; 2 shafts; cp props
Speed, knots: 24; 7 (on motors). **Range, miles:** 4,000 at 12 kt
Complement: 24 (3 officers) + 30 spare
Guns: 2 Bofors 40 mm/60. 1 Oerlikon 20 mm. 4—14.5 mm MGs (2 twin).
Radars: Surface search: Racal Decca Bridgemaster; I-band.

Comment: First pair ordered to a Serter design from Leroux & Lotz, Lorient in December 1993, second pair in October 1994. Option on fifth taken up in 1996. There is a stern door for launching a 7 m RIB, a water gun for firefighting and two passive stabilisation tanks. This version of the OPV 64 does not have a helicopter deck and the armament is fitted after delivery. Manned by the Navy for the Fisheries Department. Based at Agadir.

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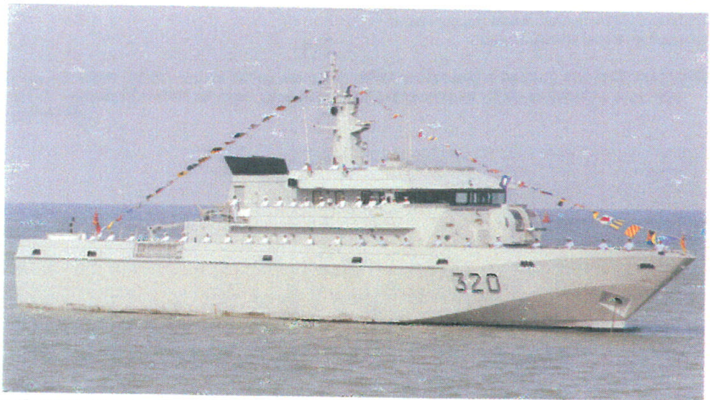
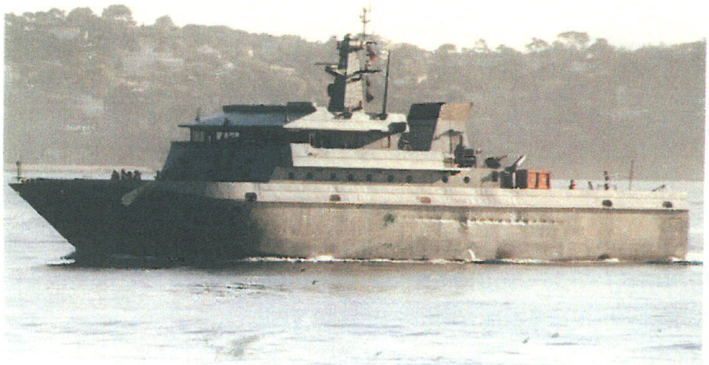


RAÏS CHARKAOUI *7/2003*, Guy Toremans* / 0568883



RAS AL MOUNASTIRI *9/2003*, Schaeffer/Marsan* / 0568855

6 EL WACIL (P 32) CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Launched*	*Commissioned*
EL WACIL	203	CMN, Cherbourg	12 June 1975	9 Oct 1975
EL JAIL	204	CMN, Cherbourg	10 Oct 1975	3 Dec 1975
EL MIKDAM	205	CMN, Cherbourg	1 Dec 1975	30 Jan 1976
EL KHAFIR	206	CMN, Cherbourg	21 Jan 1976	16 Apr 1976
EL HARIS	207	CMN, Cherbourg	31 Mar 1976	30 June 1976
EL ESSAHIR	208	CMN, Cherbourg	2 June 1976	16 July 1976

Displacement, tons: 74 light; 89 full load
Dimensions, feet (metres): 105 × 17.7 × 4.6 *(32 × 5.4 × 1.4)*
Main machinery: 2 SACM MGO 12V BZSHR diesels; 2,700 hp(m) *(1.98 MW)*; 2 shafts
Speed, knots: 28. **Range, miles:** 1,500 at 15 kt
Complement: 17
Guns: 1 Oerlikon 20 mm.
Radars: Surface search: Decca; I-band.

Comment: Ordered in February 1974. In July 1985 a further four of this class were ordered from the same builders but for the Customs Service. Wooden hull sheathed in plastic.

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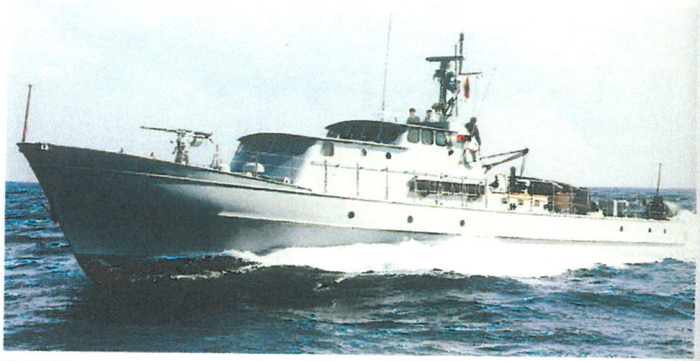

EL WACIL *6/1988* / 0081275

AMPHIBIOUS FORCES

3 BATRAL CLASS (LSMH)

Name	*No*	*Builders*	*Commissioned*
DAOUD BEN AICHA	402	Dubigeon, Normandie	28 May 1977
AHMED ES SAKALI	403	Dubigeon, Normandie	Sep 1977
ABOU ABDALLAH EL AYACHI	404	Dubigeon, Normandie	Mar 1978

Displacement, tons: 750 standard; 1,409 full load
Dimensions, feet (metres): 262.4 × 42.6 × 7.9 *(80 × 13 × 2.4)*
Main machinery: 2 SACM Type 195 V12 CSHR diesels; 3,600 hp(m) *(2.65 MW)* sustained; 2 shafts
Speed, knots: 16. **Range, miles:** 4,500 at 13 kt
Complement: 47 (3 officers)
Military lift: 140 troops; 12 vehicles or 300 tons
Guns: 2 Bofors 40 mm/70. 2—81 mm mortars. 1—12.7 mm MG.
Radars: Surface search: Thomson-CSF DRBN 32 (Racal Decca 1226); I-band.
Helicopters: Platform only.

Comment: Two ordered on 12 March 1975. Third ordered 19 August 1975. Of same type as the French *Champlain*. Vehicle-stowage above and below decks. *Daoud Ben Aicha* was refitted in Lorient by Leroux & Lotz in 1995 and *Abou Abdallah el Ayachi* in 1997.

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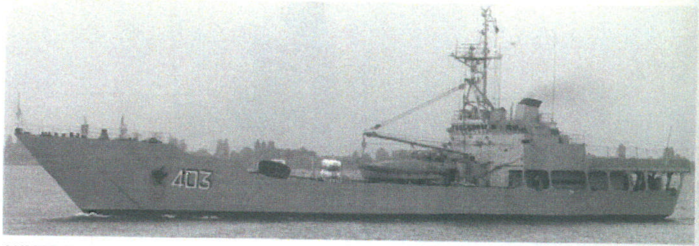

AHMED ES SAKALI *8/1997, van Ginderen Collection* / 0012787

1 EDIC CLASS (LCU)

Name	*No*	*Builders*	*Commissioned*
LIEUTENANT MALGHAGH	401	Chantiers Navals Franco-Belges	1965

Displacement, tons: 250 standard; 670 full load
Dimensions, feet (metres): 193.5 × 39.2 × 4.3 *(59 × 12 × 1.3)*
Main machinery: 2 SACM MGO diesels; 1,000 hp(m) *(735 kW)*; 2 shafts
Speed, knots: 8. **Range, miles:** 1,800 at 8 kt
Complement: 16 (1 officer)
Military lift: 11 vehicles
Guns: 2 Oerlikon 20 mm. 1—120 mm mortar.
Radars: Navigation: Decca 1226; I-band.

Comment: Ordered early in 1963. Similar to the former French landing craft of the Edic type built at the same yard.

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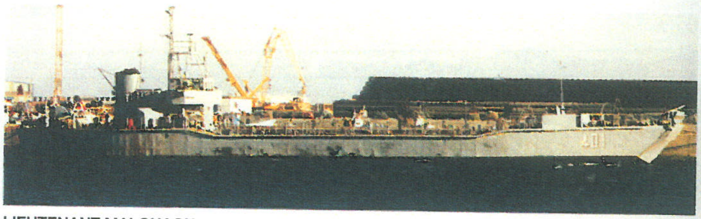

LIEUTENANT MALGHAGH *2/1995, Diego Quevedo* / 0081277

1 NEWPORT CLASS (LSTH)

Name	*No*	*Builders*	*Commissioned*
SIDI MOHAMMED BEN ABDALLAH (ex-*Bristol County*)	407 (ex-1198)	National Steel, San Diego	5 Aug 1972

Displacement, tons: 4,975 light; 8,450 full load
Dimensions, feet (metres): 522.3 (hull) × 69.5 × 17.5 (aft) *(159.2 × 21.2 × 5.3)*
Main machinery: 6 ALCO 16-251 diesels; 16,500 hp *(12.3 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 20. **Range, miles:** 14,250 at 14 kt
Complement: 257 (13 officers)
Military lift: 400 troops (20 officers); 500 tons vehicles; 3 LCVPs and 1 LCPL on davits
Guns: 1 GE/GD 20 mm 6-barrelled Vulcan Phalanx Mk 15.
Radars: Surface search: Raytheon SPS-67; G-band.
Navigation: Marconi LN66; I/J-band.
Helicopters: Platform only.

Comment: Received from the US by grant transfer on 16 August 1994. Has replaced *Arrafiq*. The ship was non-operational by late 1995 and although back in service, has so far proved to be a poor bargain. The bow ramp is supported by twin derrick arms. A ramp just forward of the superstructure connects the lower tank deck with the main deck and a vehicle passage through the superstructure provides access to the parking area amidships. A stern gate to the tank deck permits unloading of amphibious tractors into the water, or unloading of other vehicles into an LCU or on to a pier. Vehicle stowage covers 19,000 sq ft. Length over derrick arms is 562 ft *(171.3 m)*; full load draught is 11.5 ft forward and 17.5 ft aft. Based at Casablanca.

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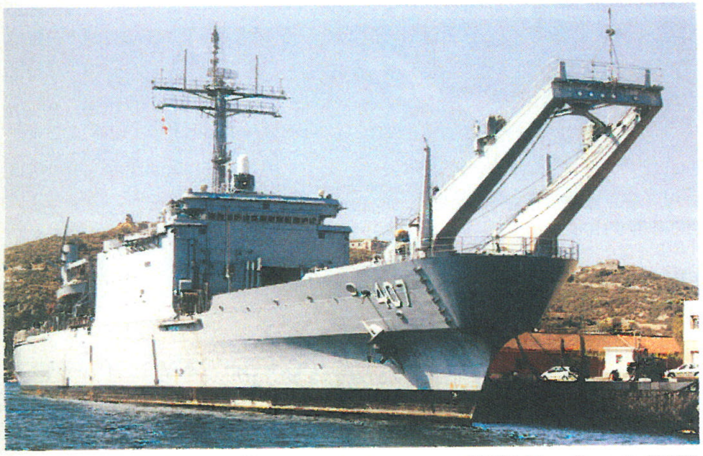
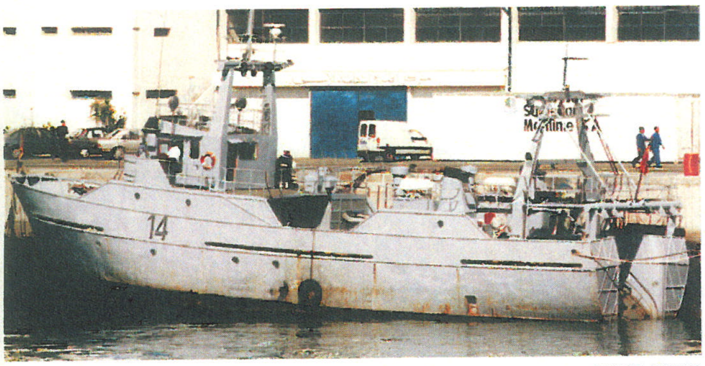


SIDI MOHAMMED BEN ABDALLAH *5/1999, Diego Quevedo* / 0081276

AUXILIARIES

Notes: (1) There is also a yacht, *Essaouira*, 60 tons, from Italy in 1967, used as a training vessel for watchkeepers.
(2) Bazán delivered a harbour pusher tug, similar to Spanish 'Y 171' class, in December 1993.
(3) There are two sail training craft *Al Massira* and *Boujdour*.
(4) There is a stern trawler used as a utility and diver support vessel *(YFU 14)*.



YFU 14 *6/1997* / 0012788

1 LOGISTIC SUPPORT SHIP (AKS)

EL AIGH (ex-*Merc Nordia*) 405

Measurement, tons: 1,500 grt
Dimensions, feet (metres): 252.6 × 40 × 15.4 *(77 × 12.2 × 4.7)*
Main machinery: 1 Burmeister & Wain diesel; 1,250 hp(m) *(919 kW)*; 1 shaft
Speed, knots: 11
Complement: 25
Guns: 2—14.5 mm MGs.

Comment: Logistic support vessel with four 5 ton cranes. Former cargo ship with ice-strengthened bow built by Fredrickshavn Vaerft in 1973 and acquired in 1981.

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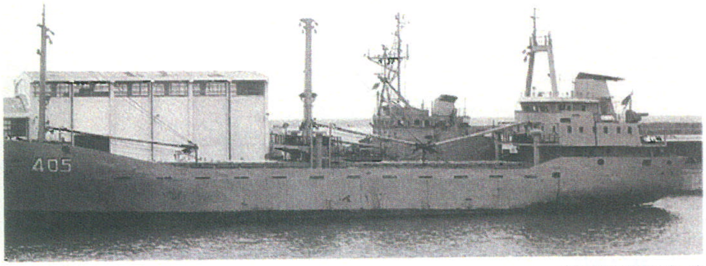

EL AIGH *5/1994, M Declerck*

1 DAKHLA CLASS (LOGISTIC SUPPORT SHIP) (AKS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
DAKHLA	408	Leroux & Lotz, Lorient	5 June 1997	1 Aug 1997

Displacement, tons: 2,160 full load
Dimensions, feet (metres): 226.4 × 37.7 × 13.8 *(69 × 11.5 × 4.2)*
Main machinery: 1 Wärtsilä Nohab 8V25 diesel; 2,300 hp(m) *(1.69 MW)* sustained; 1 shaft; cp prop
Speed, knots: 12. **Range, miles:** 4,300 at 12 kt
Complement: 24 plus 22 spare
Cargo capacity: 800 tons
Guns: 2—12.7 mm MGs.
Radars: Navigation: 2 Racal Decca Bridgemaster ARPA; I-band.

Comment: Ordered from Leroux & Lotz, Nantes in 1995. Side entry for vehicles. One 15 ton crane. Based at Agadir.

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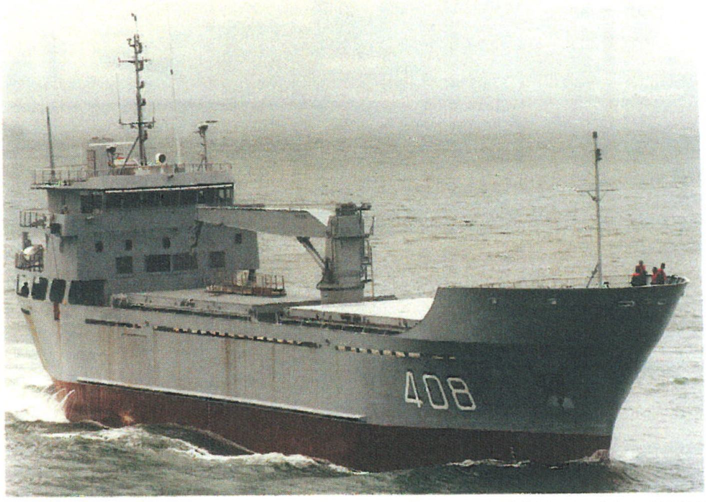

DAKHLA *8/1997, Leroux & Lotz* / 0012789

SURVEY AND RESEARCH SHIPS

1 ROBERT D CONRAD CLASS (AGOR)

Name	*No*	*Builders*	*Commissioned*
ABU EL BARAKAT AL BARBARI (ex-*Bartlett*)	702 (ex-T-AGOR 13)	Northwest Marine Iron Works, Portland, OR	31 Mar 1969

Displacement, tons: 1,200 light; 1,370 full load
Dimensions, feet (metres): 208.9 × 40 × 15.3 *(63.7 × 12.2 × 4.7)*
Main machinery: Diesel-electric; 2 Caterpillar D 378 diesel generators; 1 motor; 1,000 hp *(746 kW)*; 1 shaft; bow thruster
Speed, knots: 13.5. **Range, miles:** 12,000 at 12 kt
Complement: 41 (9 officers, 15 scientists)
Radars: Navigation: TM 1660/12S; I-band.

Comment: Leased from the USA on 26 July 1993. Fitted with instrumentation and laboratories to measure gravity and magnetism, water temperature, sound transmission in water, and the profile of the ocean floor. Special features include 10 ton capacity boom and winches for handling over-the-side equipment; bow thruster; 620 hp gas turbine (housed in funnel structure) for providing 'quiet' power when conducting experiments; can propel the ship at 6.5 kt.
Ships of this class are in service with Brazil, Mexico, Chile, Tunisia and Portugal.

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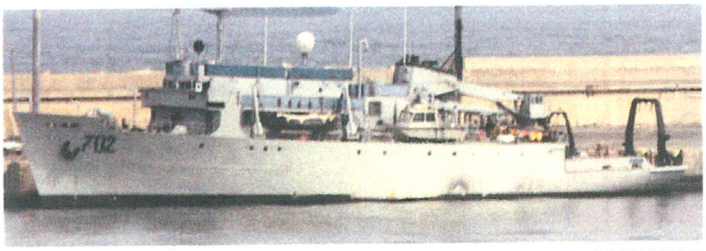


ABU EL BARAKAT AL BARABARI *3/2001* / 0525909

CUSTOMS/COAST GUARD/POLICE

Notes: (1) The Coast Guard was created by Royal Decree on 9 September 1997. Responsibility for Search and Rescue conferred on the Ministére des Pêches Maritimes (MPM). Operational control is exercised from the National Rescue Service HQ at Rabat in co-ordination with the Merchant Marine HQ at Casablanca.
(2) There is another 17 m SAR craft *Al Fida* delivered in August 2002 and a further two craft are to be delivered in 2004.

2 SAR CRAFT (SAR)

AL AMANE 2344 **AIT BAÂMRANE** 2345

Displacement, tons: to be announced
Dimensions, feet (metres): 51.7 × 14.7 × 3.4 *(15.75 × 4.48 × 1.05)*
Main machinery: 2 Volvo D12; 1,300 hp *(970 kW)*; 2 shafts
Speed, knots: 34
Complement: 4

Comment: Constructed by Grupo Armón Shipbuilders, Spain and delivered in March 2003. Aluminium hull.

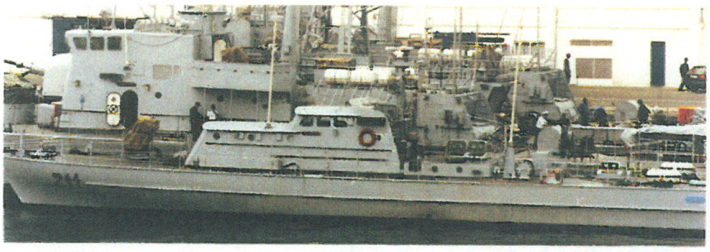
NEW ENTRY

4 ERRAID (P 32) CLASS (COASTAL PATROL CRAFT) (WPB)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ERRAID	209	CMN, Cherbourg	20 Dec 1987	18 Mar 1988
ERRACED	210	CMN, Cherbourg	21 Jan 1988	15 Apr 1988
EL KACED	211	CMN, Cherbourg	10 Mar 1988	17 May 1988
ESSAID	212	CMN, Cherbourg	19 May 1988	4 July 1988

Displacement, tons: 89 full load
Dimensions, feet (metres): 105 × 17.7 × 4.6 *(32 × 5.4 × 1.4)*
Main machinery: 2 SACM MGO 12V BZSHR diesels; 2,700 hp(m) *(1.98 MW)*; 2 shafts
Speed, knots: 28. **Range, miles:** 1,500 at 15 kt
Complement: 17
Guns: 1 Oerlikon 20 mm.
Radars: Navigation: Decca; I-band.

Comment: Similar to the 'El Wacil' class listed under Patrol Forces. Ordered in July 1985.
VERIFIED



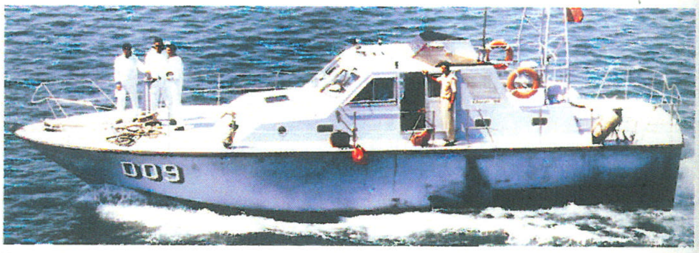
EL KACED *6/1999* / 0081279

18 ARCOR 46 CLASS (COASTAL PATROL CRAFT) (WPB)

D 01-18

Displacement, tons: 15 full load
Dimensions, feet (metres): 47.6 × 13.8 × 4.3 *(14.5 × 4.2 × 1.3)*
Main machinery: 2 SACM UD18V8 M5D diesels; 1,010 hp(m) *(742 kW)* sustained; 2 shafts
Speed, knots: 32. **Range, miles:** 300 at 20 kt
Complement: 6
Guns: 2 Browning 12.7 mm MGs.
Radars: Surface search: Furuno 701; I-band.

Comment: Ordered from Arcor, La Teste in June 1985. GRP hulls. Delivered in groups of three from April to September 1987. Used for patrolling the Mediterranean coastline. ***VERIFIED***

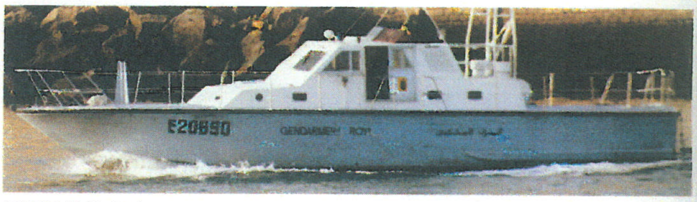


D 09 *8/1994, Paul Beaver* / 0081280

15 ARCOR 53 CLASS (COASTAL PATROL CRAFT) (WPBF)

Displacement, tons: 17 full load
Dimensions, feet (metres): 52.5 × 13 × 3.9 *(16 × 4 × 1.2)*
Main machinery: 2 Saab DSI-14 diesels; 1,250 hp(m) *(919 kW)*; 2 shafts
Speed, knots: 35. **Range, miles:** 300 at 20 kt
Complement: 6
Guns: 1—12.7 mm MG.
Radars: Surface search: Furuno; I-band.

Comment: Ordered from Arcor, La Teste in 1990 for the Police Force. Delivered at one a month from October 1992.
VERIFIED



ARCOR 53 (Police) *10/1999, M Declerck* / 0105138

3 SAR CRAFT (SAR)

HAOUZ ASSA TARIK

Displacement, tons: 40 full load
Dimensions, feet (metres): 63.6 × 15.7 × 4.3 *(19.4 × 4.8 × 1.3)*
Main machinery: 2 diesels; 1,400 hp(m) *(1.03 MW)*; 2 shafts
Speed, knots: 20
Complement: 6

Comment: Rescue craft built by Schweers, Bardenfleth and delivered in 1991. ***VERIFIED***

Mozambique
MARINHA MOÇAMBIQUE

Country Overview

Mozambique gained independence from Portugal in 1975. Situated in south-eastern Africa, it has an area of 309,496 square miles and is bordered to the north by Tanzania, to the south by South Africa and Swaziland and to the west by Zimbabwe, Zambia, and Malawi. It has a 1,334 n mile coastline with the Mozambique Channel of the Indian Ocean. Maputo (formerly Lourenço Marques) is the capital, largest city and principal port. There is another major port at Beira. Territorial Seas (12 n miles) are claimed. A 200 n mile EEZ has also been claimed but the limits are not fully defined by boundary agreements.

All the Russian built Zhuks and Yevgenyas have sunk alongside or been sold. There are some motorboats operational on Lake Malawi but, while it has been stated that the restoration of the Navy has a high priority, there are as yet no funds for new patrol craft.

Headquarters Appointments

Head of Navy:
Vice Admiral Pascoal Jose Nhalungo

Personnel

2004: 200

Bases

Maputo (Naval HQ); Nacala; Beira; Pemba (Porto Amelia); Metangula (Lake Malawi); Tete (River Zambesi); Inhambane.

Myanmar
TATMADAW YAY

Country Overview

The Union of Myanmar, also known as the Republic of Burma, gained independence in 1948. Situated in South East Asia, it has an area of 261,218 square miles, is bordered to the north-east by China, to the north-west by India and Bangladesh and to the south-east by Laos and Thailand. It has a 1,042 n mile coastline with the Andaman Sea and the Bay of Bengal. Rangoon (Yangon) is the capital, largest city and principal port. Some 6,900 n miles of navigable inland waterways are important transport arteries. Territorial waters (12 n miles) are claimed. A 200 n mile EEZ has been claimed although the limits have only been partly defined by boundary agreements.

Headquarters Appointments

Commander in Chief:
Rear Admiral Tin Aye
Chief of Staff:
Rear Admiral Soe Thane

Personnel

(a) 2004: 16,000 (including 800 naval infantry)
(b) Voluntary service

Bases

There are three Regions: Arakan, Irrawaddy and Tenasserim. Bases at Bassein, Mergui, Moulmein, Rangoon, Seikyi, Sittwe (Akyab), Sinmalaik, Hanggyi Island, Kyaukpyu, Sandoway, Tavoy.

Organisations

Two flotillas report directly to Naval HQ at Rangoon. No.1 Major War Vessel Group is based at Rangoon and No.2 Major War Vessel Group at Dawei (Tavoy).

Naval Infantry

Mostly deployed to Arakan and Tenasserim coastal regions and to the Irawaddy delta for counter-insurgency operations.

CORVETTES

Notes: 75 m Corvettes of 1,200 tons have been constructed at Sinmalaik Shipyard. Based on Chinese hulls, they are reported to be armed with C801 missiles and 76 mm guns. Reported to be being fitted with Israeli electronic systems. First ship reported to have conducted sea trials in 2001 when second ship was nearing completion. Two further ships are expected.

PATROL FORCES

6 HOUXIN (TYPE 037/1G) CLASS
(FAST ATTACK CRAFT—GUN) (PTG)

MAGA 471
SAITTRA 472
DUWA 473
ZEYDA 474
475-476

Displacement, tons: 478 full load
Dimensions, feet (metres): 206 × 23.6 × 7.9 *(62.8 × 7.2 × 2.4)*
Main machinery: 4 PR 230ZC diesels; 4,000 hp(m) *(2.94 MW)*; 4 shafts
Speed, knots: 28. **Range, miles:** 1,300 at 15 kt
Complement: 71

Missiles: SSM: 4 YJ-1 (C-801) (2 twin); active radar homing to 40 km *(22 n miles)* at 0.9 Mach; warhead 165 kg; sea skimmer. C-802 may be fitted in due course.
Guns: 4—37 mm/63 Type 76A (2 twin); 180 rds/min to 8.5 km *(4.6 n miles)*; weight of shell 1.42 kg.
4—14.5 mm Type 69 (2 twin).
Countermeasures: ESM/ECM: intercept and jammer.
Radars: Surface search: Square Tie; I-band.
Fire control: Rice Lamp; I-band.

Programmes: First pair arrived from China in December 1995, second pair in mid-1996 and last two in late 1997. The first four were wrongly reported as 'Hainan' class.
Structure: Details given are for this class in Chinese service.
Operational: *475* damaged in a collision during sea trials in August 1996. All based at Rangoon.

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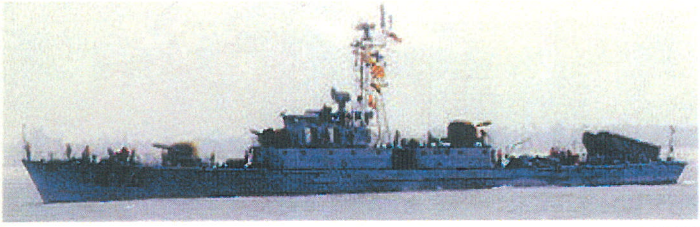


ZEYDA *6/2001* / 0130747

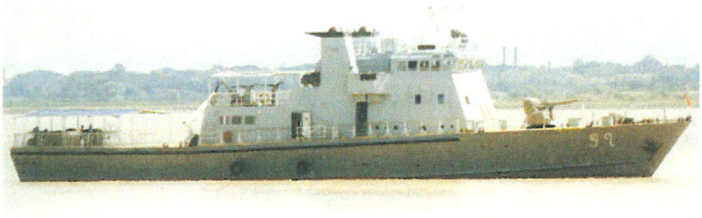
2 OSPREY CLASS (OFFSHORE PATROL VESSELS) (PBO)

Name	*No*	*Builders*	*Commissioned*
INDAW	FV 55	Frederikshavn Dockyard	30 May 1980
INYA	FV 57	Frederikshavn Dockyard	25 Mar 1982

Displacement, tons: 385 standard; 505 full load
Dimensions, feet (metres): 164 × 34.5 × 9 *(50 × 10.5 × 2.8)*
Main machinery: 2 Burmeister and Wain Alpha diesels; 4,640 hp(m) *(3.4 MW)*; 2 shafts; cp props
Speed, knots: 20. **Range, miles:** 4,500 at 16 kt
Complement: 20 (5 officers)
Guns: 1 Bofors 40 mm/60. 2 Oerlikon 20 mm.

Comment: Operated by Burmese Navy for the People's Pearl and Fishery Department. Helicopter deck with hangar in *Indaw*. Carry David Still craft or RIBs capable of 25 kt. *Inya* reported to be in poor condition. Both based at Rangoon. A third of class, *Inma*, reported to have sunk in 1987.

VERIFIED



INYA *1980* / 0056642

4 MYANMAR CLASS (COASTAL PATROL CRAFT) (PBO)

553 **+3**

Displacement, tons: 213 full load
Dimensions, feet (metres): 147.3 × 23 × 8.2 *(45 × 7 × 2.5)*
Main machinery: 2 Mercedes-Benz diesels; 2 shafts
Speed, knots: 30+
Complement: 34 (7 officers)
Guns: 1—40 mm/60. 2—37 mm (1 twin). 4—23 mm (2 twin). 4—14.5 mm (2 twin).
Radars: Surface search: I-band.
Fire control: Rice Lamp; I-band.

Comment: First ship under construction at the Naval Engineering Depot, Rangoon in 1991 and reported commissioned on 27 March 1996. Three ships reported in service in 2000 with a fourth believed to have followed. More may be built. Missiles (C-801) may be carried.

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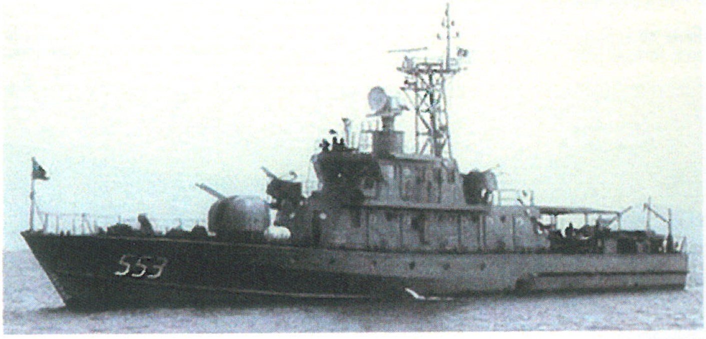

MYANMAR CLASS 553 *6/2001* / 0130746

10 HAINAN (TYPE 037) CLASS (COASTAL PATROL CRAFT) (PC)

Name	*No*	*Name*	*No*	*Name*	*No*
YAN SIT AUNG	441	**YAN YE AUNG**	445	**YAN WIN AUNG**	448
YAN MYAT AUNG	442	**YAN MIN AUNG**	446	**YAN AYE AUNG**	449
YAN NYEIN AUNG	443	**YAN PAING AUNG**	447	**YAN ZWE AUNG**	450
YAN KHWIN AUNG	444				

Displacement, tons: 375 standard; 392 full load
Dimensions, feet (metres): 192.8 × 23.6 × 7.2 *(58.8 × 7.2 × 2.2)*
Main machinery: 4 PCR/Kolomna Type 9-D-8 diesels; 4,000 hp(m) *(2.94 MW)* sustained; 4 shafts
Speed, knots: 30.5. **Range, miles:** 1,300 at 15 kt
Complement: 69
Guns: 4 China 57 mm/70 (2 twin); 120 rds/min to 12 km *(6.5 n miles)*; weight of shell 6.31 kg.
4 USSR 25 mm/60 (2 twin); 270 rds/min to 3 km *(1.6 n miles)* anti-aircraft; weight of shell 0.34 kg.
A/S mortars: 4 RBU 1200 5-tubed fixed launchers; range 1,200 m; warhead 34 kg.
Depth charges: 2 BMB-2 projectors; 2 racks.
Mines: Rails fitted.
Countermeasures: ESM: Intercept.
Radars: Surface search: Pot Head; I-band.
Navigation: Raytheon Pathfinder; I-band.
IFF: High Pole.
Sonars: Stag Ear; hull-mounted; active search and attack; high frequency.

Comment: First six delivered from China in January 1991, four more in mid-1993. The first six originally had double figure pennant numbers which have been changed to three figures. These ships are the later variant of this class with tripod masts. Based at Rangoon.

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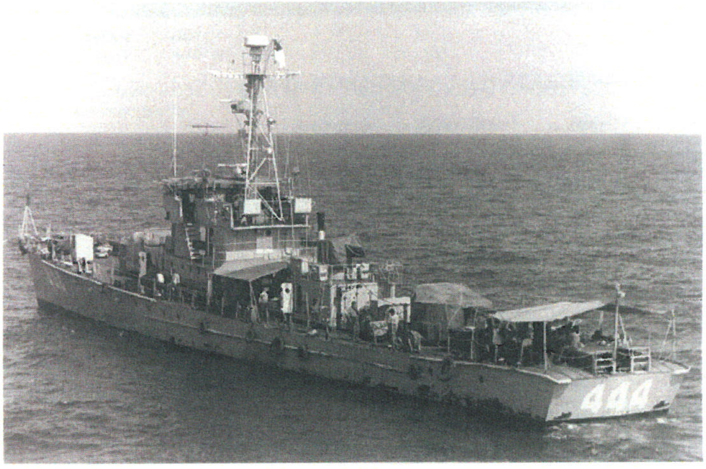
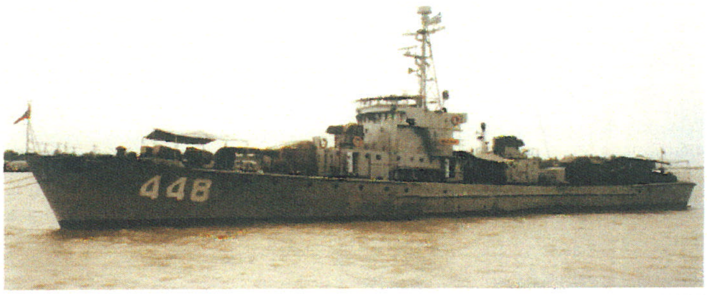


YAN KHWIN AUNG *12/1994, G Toremans*



YAN WIN AUNG *9/1993* / 0056641

3 PB 90 CLASS (COASTAL PATROL CRAFT) (PB)

424 **425** **426**

Displacement, tons: 92 full load
Dimensions, feet (metres): 89.9 × 21.5 × 7.2 *(27.4 × 6.6 × 2.2)*
Main machinery: 3 diesels; 4,290 hp(m) *(3.15 MW)*; 3 shafts
Speed, knots: 32. **Range, miles:** 400 at 25 kt
Complement: 17
Guns: 8—20 mm M75 (two quad). 2—128 mm launchers for illuminants.
Radars: Surface search: Decca 1226; I-band.

Comment: Built by Brodotechnika, Yugoslavia for an African country and completed in 1986-87. Laid up when the sale did not go through and shipped to Burma arriving in October 1990. All are active. Based at Rangoon.

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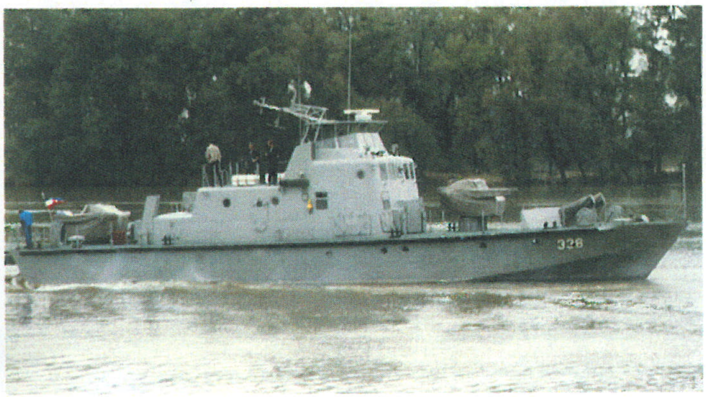

PB 90 (Yugoslav colours) *1990, Yugoslav FDSP* / 0056643

6 BURMA PGM TYPE (COASTAL PATROL CRAFT) (PB)

PGM 412-415 **THIHAYARZAR I** and **II**

Displacement, tons: 168 full load
Dimensions, feet (metres): 110 × 22 × 6.5 *(33.5 × 6.7 × 2)*
Main machinery: 2 Deutz SBA16MB816 LLKR diesels; 2,720 hp(m) *(2 MW)*; 2 shafts
Speed, knots: 16. **Range, miles:** 1,400 at 14 kt
Complement: 17
Guns: 2 Bofors 40 mm/60.

Comment: Built by Burma Naval Dockyard modelled on the US PGM 43 type. First two completed 1983. Two more craft with identical dimensions and named *Thihayarzar I* and *II* were delivered by Myanma Shipyard to the Customs on 27 June 1993. Both craft are armed and were taken over by the Navy.

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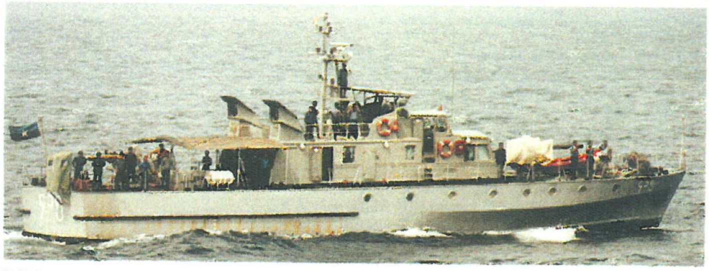

PGM 415 *4/1993* / 0056644

4 RIVER GUNBOATS (Ex-TRANSPORTS) (PBR)

SAGU **SEINDA** **SHWETHIDA** **SINMIN**

Displacement, tons: 98 full load
Dimensions, feet (metres): 94.5 × 22 × 4.5 *(28.8 × 6.7 × 1.4)*
Main machinery: 1 Crossley ERL 6-cyl diesel; 160 hp *(119 kW)*; 1 shaft
Speed, knots: 12
Complement: 32
Guns: 1—40 mm/60 *(Sagu)*. 1—20 mm (3 in *Sagu*).

Comment: Built in mid-1950s. *Sinmin, Seinda* and *Shwethida* have a roofed-in upper deck with a 20 mm gun forward of the funnel. *Sagu* has an open upper deck aft of the funnel but with a 40 mm gun forward and mountings for 20 mm aft on the upper deck and midships either side on the lower deck. Based at Moulmein. Four other ships of the same type are unarmed and are listed under *Auxiliaries*.

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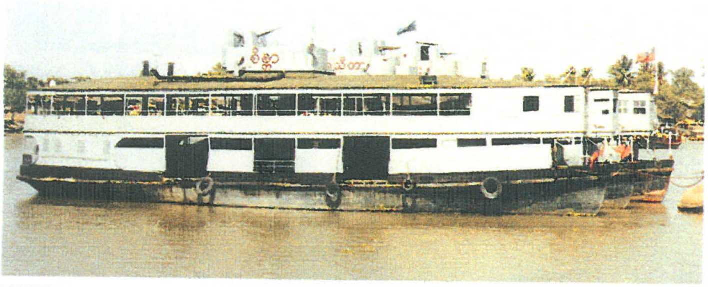


SEINDA *8/1994* / 0056649

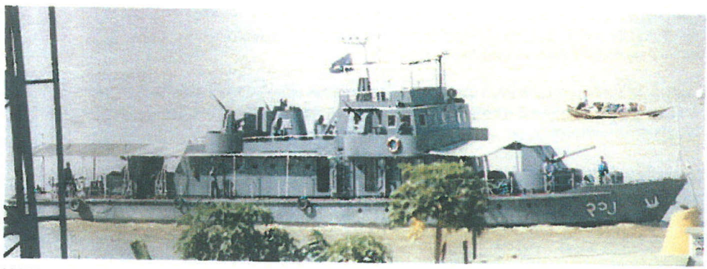
2 IMPROVED Y 301 CLASS (RIVER GUNBOATS) (PBR)

Y 311 **Y 312**

Displacement, tons: 250 full load
Dimensions, feet (metres): 121.4 × 24 × 3.9 *(37 × 7.3 × 1.2)*
Main machinery: 2 MTU MB diesels; 1,000 hp(m) *(735 kW)*; 2 shafts
Speed, knots: 12
Complement: 37
Guns: 2 Bofors 40 mm/60. 4 Oerlikon 20 mm.
Radars: Surface search: Raytheon; I-band.

Comment: Built at Simmilak in 1969 and based on similar Yugoslav craft which have been scrapped. Based at Sittwe.

VERIFIED



Y 312 *8/1994* / 0056647

6 CARPENTARIA CLASS (RIVER PATROL CRAFT) (PBR)

112-117

Displacement, tons: 26 full load
Dimensions, feet (metres): 51.5 × 15.7 × 4.3 *(15.7 × 4.8 × 1.3)*
Main machinery: 2 MTU 8V 331 TC92 diesels; 1,770 hp(m) *(1.3 MW)* sustained; 2 shafts
Speed, knots: 29. **Range, miles:** 950 at 18 kt
Complement: 10
Guns: 1 Oerlikon 20 mm. 1—12.7 mm MG.

Comment: Built by De Havilland Marine, Sydney. First two delivered 1979, remainder in 1980. Similar to craft built for Indonesia. Based at Rangoon.

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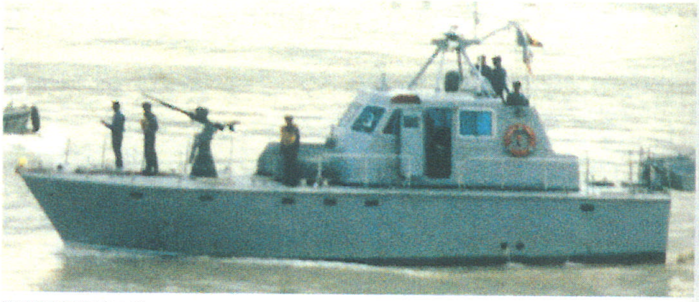


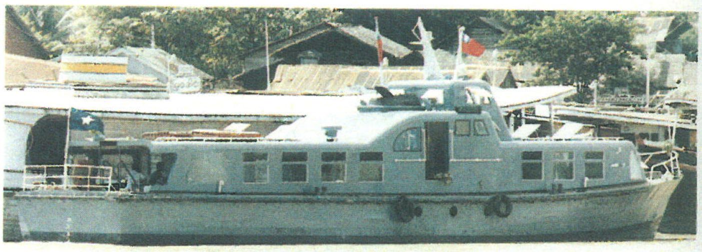
CARPENTARIA 113 *1991* / 0056651

25 MICHAO CLASS (PBR)

001-025

Comment: Small craft, 52 ft *(15.8 m)* long, acquired from Yugoslavia in 1965. Also used to ferry troops and two are used as VIP launches. 1 to 7 based at Rangoon; 8 to 16 at Moulmein and 17 to 25 at Sittwe.

VERIFIED



MICHAO CLASS *5/1995* / 0056650

2 CGC TYPE (RIVER GUNBOATS) (PBR)

MGB 102 **MGB 110**

Displacement, tons: 49 standard; 66 full load
Dimensions, feet (metres): 83 × 16 × 5.5 *(25.3 × 4.9 × 1.7)*
Main machinery: 4 GM diesels; 800 hp *(596 kW)*; 2 shafts
Speed, knots: 11
Complement: 16
Guns: 1 Bofors 40 mm/60. 1 Oerlikon 20 mm.

Comment: Ex-USCG type cutters with new hulls built in Burma. Completed in 1960. Based at Rangoon but have not been seen recently.

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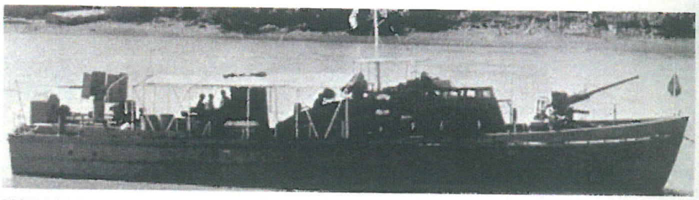

MGB 110

9 RIVER PATROL CRAFT (PBR)

RPC 11-19

Displacement, tons: 37 full load
Dimensions, feet (metres): 50 × 14 × 3.5 *(15.2 × 4.3 × 1.1)*
Main machinery: 2 Thornycroft RZ 6 diesels; 250 hp *(186 kW)*; 2 shafts
Speed, knots: 10. **Range, miles:** 400 at 8 kt
Complement: 8
Guns: 1 Oerlikon 20 mm or 2—12.7 mm MGs (twin). 1—12.7 mm MG.

Comment: Built by the Naval Engineering Depot, Rangoon. First five in mid-1980s; second batch of a modified design in 1990-91. Sometimes used by the Naval Infantry and can carry up to 35 troops. Based at Rangoon.

VERIFIED

10 Y 301 CLASS (RIVER GUNBOATS) (PBR)

Y 301-310

Displacement, tons: 120 full load
Dimensions, feet (metres): 104.8 × 24 × 3 *(32 × 7.3 × 0.9)*
Main machinery: 2 MTU MB diesels; 1,000 hp(m) *(735 kW)*; 2 shafts
Speed, knots: 13
Complement: 29
Guns: 2 Bofors 40 mm/60 or 1 Bofors 40 mm/60 and 1 Vickers 2-pdr.

Comment: All of these boats were completed in 1958 at the Uljanik Shipyard, Pula, Yugoslavia. Y 301, 303 and 307 based at Moulmein. The remainder at Rangoon.

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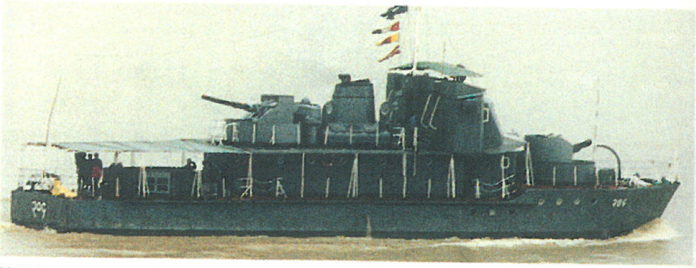


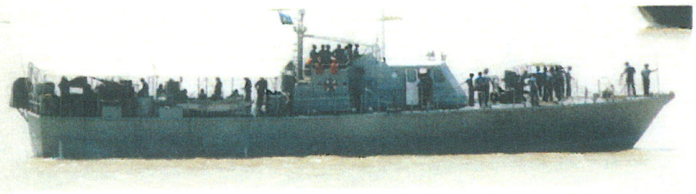
Y 304 *1991* / 0056648

3 SWIFT TYPE PGM (COASTAL PATROL CRAFT) (PB)

PGM 421-423

Displacement, tons: 128 full load
Dimensions, feet (metres): 103.3 × 23.8 × 6.9 *(31.5 × 7.2 × 3.1)*
Main machinery: 2 MTU 12V 331 TC81 diesels; 2,450 hp(m) *(1.8 MW)* sustained; 2 shafts
Speed, knots: 27. **Range, miles:** 1,800 at 18 kt
Complement: 25
Guns: 2 Bofors 40 mm/60. 2 Oerlikon 20 mm. 2—12.7 mm MGs.
Radars: Surface search: Raytheon 1500; I-band.

Comment: Swiftships construction completed between March and September 1979. Acquired 1980 through Vosper, Singapore. *PGM 421* previously reported sunk in 1990s but reported to have been repaired. Based at Rangoon. ***UPDATED***



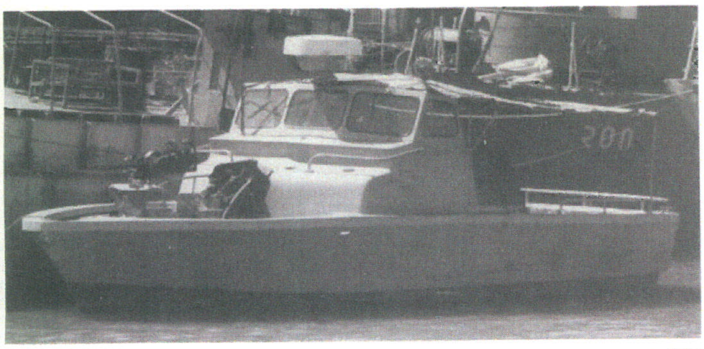
PGM *6/1991* / 0056645

6 PBR Mk II RIVER PATROL CRAFT (PBR)

PBR 211-216

Displacement, tons: 9 full load
Dimensions, feet (metres): 32 × 11 × 2.6 *(9.8 × 3.4 × 0.8)*
Main machinery: 2 GM 6V-53 diesels; 348 hp *(260 kW)* sustained; 2 water-jets
Speed, knots: 25. **Range, miles:** 180 at 20 kt
Complement: 4 or 5
Guns: 2—12.7 mm (twin, fwd) MGs. 1—7.9 mm LMG (aft).
Radars: Surface search: Raytheon 1900; I-band.

Comment: Acquired in 1978. Built by Uniflite, Washington. GRP hulls. Based at Moulmein but not reported as active recently. ***VERIFIED***



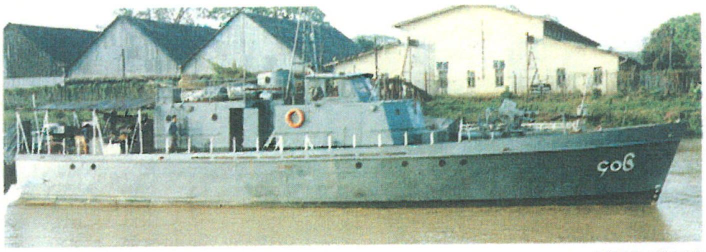
PBR 211 *1987*

6 PGM 43 TYPE (COASTAL PATROL CRAFT) (PB)

PGM 401-406

Displacement, tons: 141 full load
Dimensions, feet (metres): 101 × 21.1 × 7.5 *(30.8 × 6.4 × 2.3)*
Main machinery: 8 GM 6-71 diesels; 1,392 hp *(1.04 MW)* sustained; 2 shafts
Speed, knots: 17. **Range, miles:** 1,000 at 15 kt
Complement: 17
Guns: 1 Bofors 40 mm/60. 2 Oerlikon 20 mm (twin). 2—12.7 mm MGs.
Radars: Surface search: Raytheon 1500 (PGM 405-406).
EDO 320 (PGM 401-404); I/J-band.

Comment: First four built by Marinette Marine in 1959; last pair by Peterson Shipbuilders in 1961. PGM 401-403 based at Moulmein and 404-405 at Rangoon. PGM 406 at Sittwe. ***VERIFIED***



PGM 406 *3/1992* / 0056646

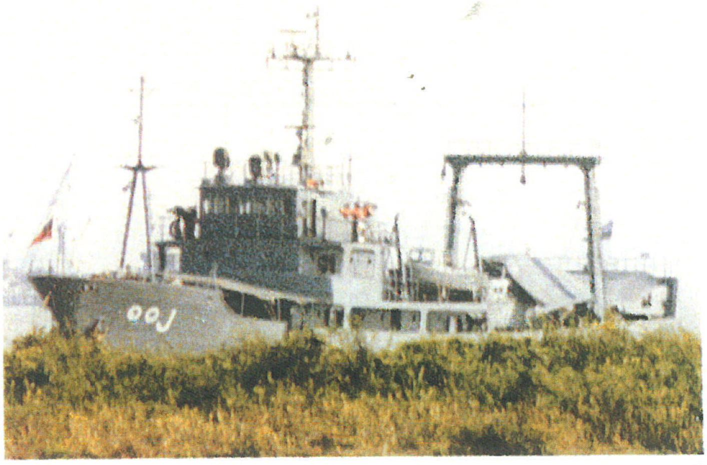
SURVEY SHIPS

1 SURVEY SHIP (AGS)

Name	*No*	*Builders*	*Commissioned*
— *(ex-Changi)*	802	Miho Shipyard, Shimizu	20 June 1973

Displacement, tons: 880 full load
Dimensions, feet (metres): 154.2 × 28.6 × 11.9 *(47 × 8.7 × 3.6)*
Main machinery: 1 Niigata diesel; 1 shaft
Speed, knots: 13
Complement: 45 (5 officers)
Guns: 2 Oerlikon 20 mm.
Radars: Navigation: I-band.

Comment: A fishery research ship of Singapore origin, arrested on 8 April 1974 and taken into service as a survey vessel in about 1981. Stern trawler type. Based at Rangoon. ***UPDATED***



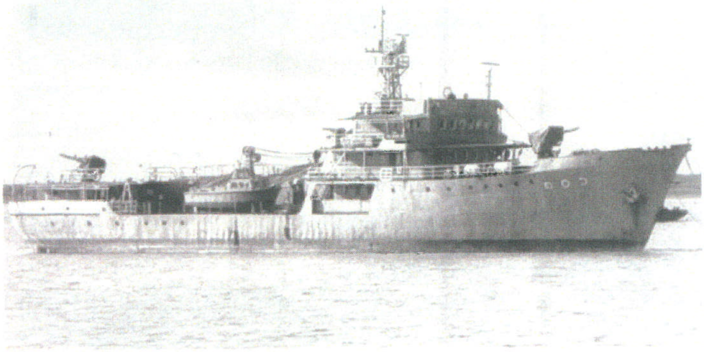
802 *10/1993* / 0056657

1 SURVEY SHIP (AGS)

Name	*No*	*Builders*	*Commissioned*
—	801	Brodogradiliste Tito, Belgrade, Yugoslavia	1965

Displacement, tons: 1,059 standard
Dimensions, feet (metres): 204 × 36 × 11.8 *(62.2 × 11 × 3.6)*
Main machinery: 2 MTU 12V 493 TY7 diesels; 2,120 hp(m) *(1.62 MW)* sustained; 2 shafts
Speed, knots: 15
Complement: 99 (7 officers)
Guns: 2 Bofors 40 mm/60. 2 Oerlikon 20 mm (twin).
Radars: Navigation: Racal Decca; I-band.

Comment: Has two surveying motor boats. The after gun can be removed to provide a helicopter platform. This ship is sometimes referred to as Thu Tay Thi which means 'survey vessel'. Based at Rangoon. ***VERIFIED***



801 *6/1993*

MINE WARFARE FORCES

Notes: Up to two Chinese-built minesweepers are expected to be acquired when funds are available.

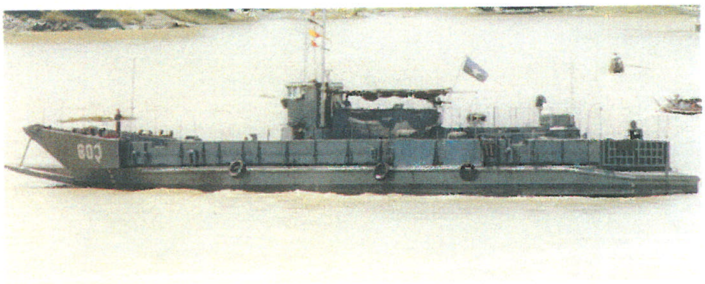
AMPHIBIOUS FORCES

1 LCU

AIYAR LULIN 603

Displacement, tons: 360 full load
Dimensions, feet (metres): 119 × 34 × 6 *(36.3 × 10.4 × 1.8)*
Main machinery: 4 GM diesels; 600 hp *(448 kW)*; 2 shafts
Speed, knots: 10. **Range, miles:** 1,200 at 8 kt
Complement: 14
Military lift: 168 tons
Guns: 1—12.7 mm MG.

Comment: Completed in Rangoon in 1966 to the US 1610 design. Based at Rangoon. ***VERIFIED***



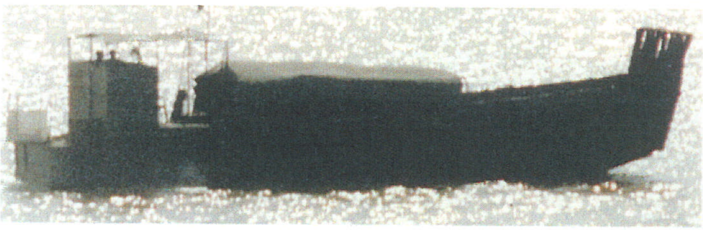
AIYAR LULIN *1990* / 0056654

10 LCM 3 TYPE

LCM 701-710

Displacement, tons: 52 full load
Dimensions, feet (metres): 50 × 14 × 4 *(15.2 × 4.3 × 1.2)*
Main machinery: 2 Gray Marine 64 HN9 diesels; 330 hp *(246 kW)*; 2 shafts
Speed, knots: 9
Complement: 5

Comment: US-built LCM type landing craft. Used as local transports for stores and personnel. Cargo capacity, 30 tons. Guns have been removed. Based at Sittwe. ***VERIFIED***



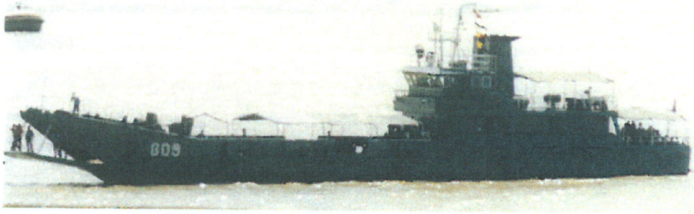
LCM 704 *5/1994* / 0056655

4 ABAMIN CLASS (LCU)

AIYAR MAI 604	AIYAR MINTHAMEE 606
AIYAR MAUNG 605	AIYAR MINTHAR 607

Displacement, tons: 250 full load
Dimensions, feet (metres): 125.6 × 29.8 × 4.6 *(38.3 × 9.1 × 1.4)*
Main machinery: 2 Kubota diesels; 600 hp(m) *(441 kW)*; 2 shafts
Speed, knots: 10
Complement: 10
Military lift: 100 tons
Guns: 1—12.7 mm MG.

Comment: All built by Yokohama Yacht in 1969. Based at Rangoon. ***VERIFIED***

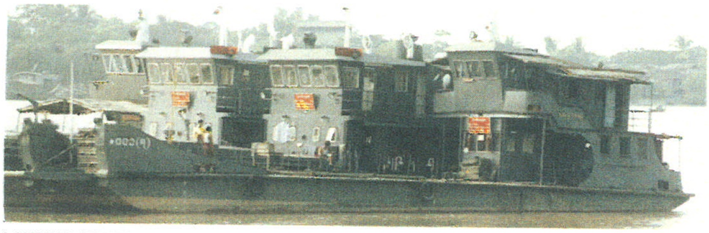


AIYAR MAUNG *1991* / 0056653

3 LCU

001-003

Comment: Operated by the Army. Dimensions not known. ***VERIFIED***



LANDING CRAFT 003 *7/1992* / 0056652

AUXILIARIES

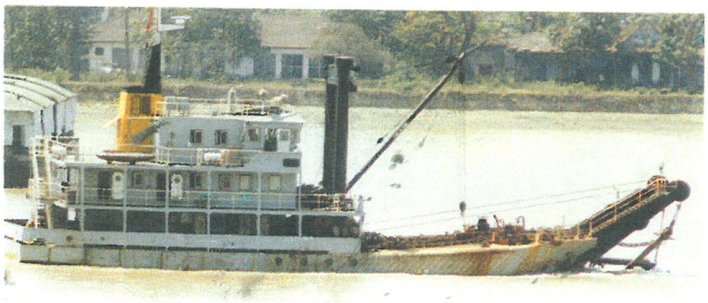
Notes: As well as the ships listed below there is a small coastal oil tanker, a harbour tug and several harbour launches and personnel carriers.

1 BUOY TENDER (ABU)

HSAD DAN

Displacement, tons: 706 full load
Dimensions, feet (metres): 130.6 × 37.1 × 8.9 *(39.8 × 11.3 × 2.7)*
Main machinery: 2 Deutz BA8M816 diesels; 1,341 hp(m) *(986 kW)*; 2 shafts
Speed, knots: 10
Complement: 23

Comment: Built by Italthai in 1986. Operated by the Rangoon Port Authority but manned by the Navy. ***VERIFIED***



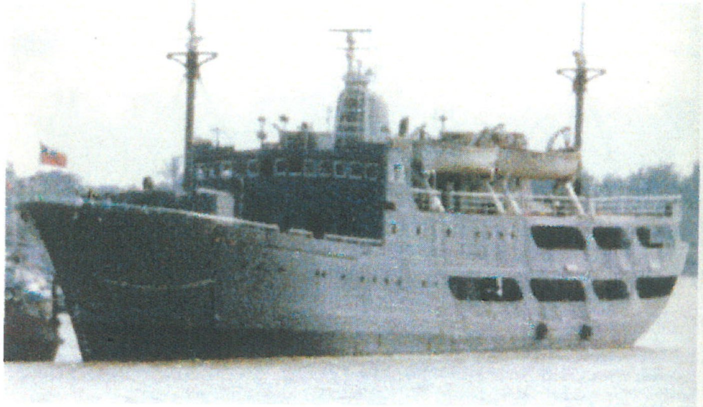
HSAD DAN *5/1992* / 0056662

1 TRANSPORT VESSEL (AK)

AYIDAWAYA

Displacement, tons: 805 full load
Dimensions, feet (metres): 163.4 × 27.6 × 12.1 *(49.8 × 8.4 × 3.7)*
Main machinery: 1 diesel; 600 hp(m) *(441 kW)*; 1 shaft
Speed, knots: 12
Complement: 30

Comment: Built in Norway in 1975. Acquired in 1991 and used as transport for stores and personnel. ***VERIFIED***

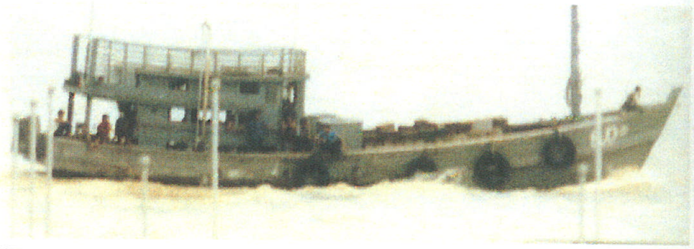


AYIDAWAYA *12/1991* / 0056658

8 MFVs

511	520-523	901	905	906

Comment: Armed vessels of approximately 200 tons *(901)*, 80 tons *(905, 906)* and 50 tons (remainder) with a 12.7 mm or 6.72 mm MG mounted above the bridge in some. All have navigational radars. Based at Rangoon. ***UPDATED***



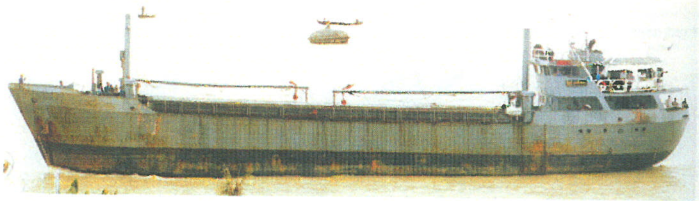
MFV *8/1990* / 0104255

1 TRANSPORT VESSEL (AKL)

PYI DAW AYE

Displacement, tons: 850 full load
Dimensions, feet (metres): 163 × 27 × 11.5 *(49.7 × 8.3 × 3.5)*
Main machinery: 2 diesels; 600 hp *(447 kW)*; 2 shafts
Speed, knots: 11
Complement: 12

Comment: Completed in about 1975. Dimensions are approximate. Naval manned. ***VERIFIED***



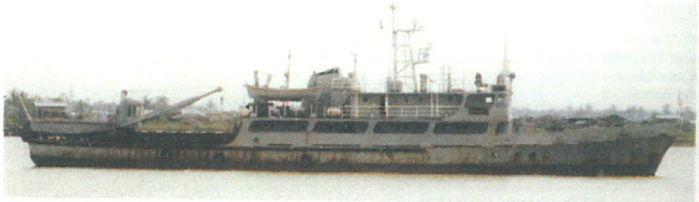
PYI DAW AYE *1991* / 0056663

1 DIVING SUPPORT VESSEL (YDT)

YAN LON AUNG 200

Displacement, tons: 536 full load
Dimensions, feet (metres): 179 × 30 × 8 *(54.6 × 9.1 × 2.4)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 12
Complement: 88
Guns: 1 Bofors 40 mm/60. 2—12.7 mm MGs.

Comment: Support diving ship acquired from Japan in 1967. Based at Rangoon. ***VERIFIED***



YAN LON AUNG *7/1993* / 0056660

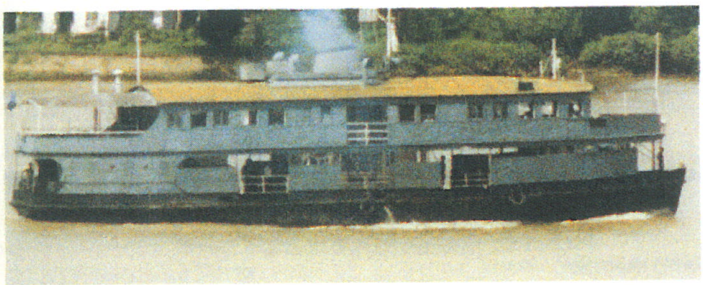
4 TRANSPORT VESSELS (AKL)

SABAN SETHYA SHWEPAZUN SETYAHAT

Displacement, tons: 98 full load
Dimensions, feet (metres): 94.5 × 22 × 4.5 *(28.8 × 6.7 × 1.4)*
Main machinery: 1 Crossley ERL 6-cyl diesel; 160 hp *(119 kW)*; 1 shaft
Speed, knots: 12
Complement: 30

Comment: These are sister ships to the armed gunboats shown under *Patrol Forces*. It is possible that a 20 mm gun may be mounted on some occasions. Based at Rangoon.

UPDATED



SHWEPAZUN *1991* / 0056661

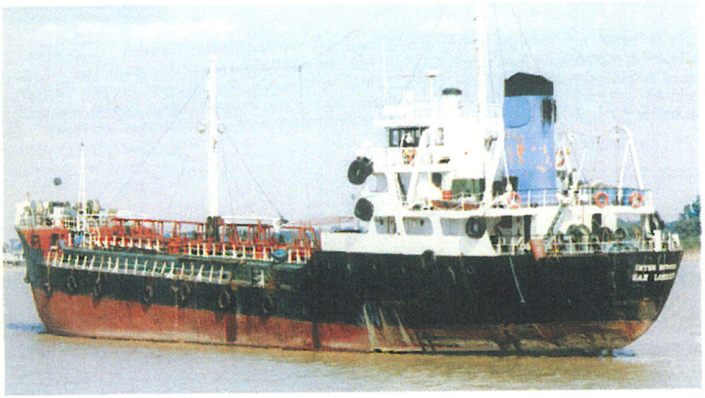
1 TANKER (AOT)

608 (ex-*Interbunker*)

Displacement, tons: 2,900 full load
Dimensions, feet (metres): 232 × 36.1 × 16.1 *(70.7 × 11 × 4.9)*
Main machinery: 2 Daihatsu diesels; 1,860 hp(m) *(1.37 MW)*; 1 shaft
Speed, knots: 11. **Range, miles:** 5,000 at 11 kt
Complement: 15

Comment: Thai owned commercial tanker arrested in October 1991 and taken into the Navy.

VERIFIED



608 *12/1991* / 0056659

SURVEY SHIPS

Notes: Thu Tay Thi means 'survey vessel'.

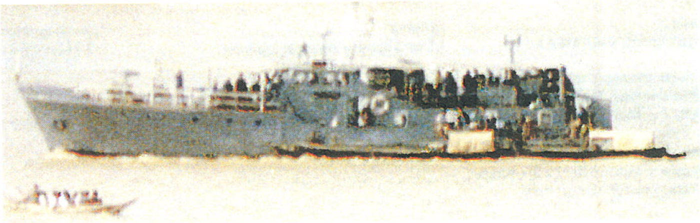
1 SURVEY CRAFT (AGSC)

Name	*No*	*Builders*	*Commissioned*
YAY BO	807	Damen, Netherlands	1958

Displacement, tons: 108 full load
Dimensions, feet (metres): 98.4 × 22.3 × 4.9 *(30 × 6.8 × 1.5)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 10
Complement: 34 (2 officers)
Guns: 1—12.7 mm MG.

Comment: Used for river surveys. Based at Rangoon.

VERIFIED



YAY BO *1990* / 0056656

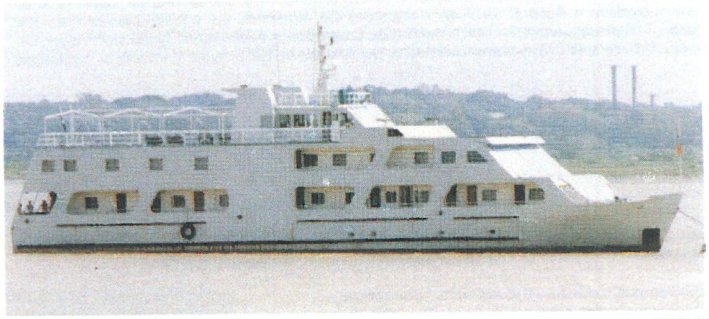
PRESIDENTIAL YACHT

1 TRANSPORT SHIP (YAC)

YADANABON

Comment: Built in Burma and used for VIP cruises on the Irrawaddy river and in coastal waters. Armed with 2—7.62 mm MGs and manned by the Navy.

VERIFIED



PRESIDENT'S YACHT *1990* / 0056665

Namibia

Country Overview

Formerly South West Africa and governed by South Africa, Namibia gained independence in 1990 although South Africa continued to administer an enclave containing the principal seaport, Walvis Bay, until 1994. With an area of 318,252 square miles, it has borders to the north with Angola and to the south with South Africa. It has an 848 n mile coastline with the south Atlantic Ocean. The capital and largest city is Windhoek and there is another port at Lüderitz. Territorial seas (12 n miles) are claimed. It also claims a 200 n mile Exclusive Economic Zone (EEZ) but its limits have not been fully defined by boundary agreements.

Ships and aircraft belong to the Fishery Protection Service whose duties will be taken over by the Maritime Wing when it is formally established.

Headquarters Appointments

Head of Maritime Wing:
Captain Festus Sacharia

Bases

Walvis Bay, Luderitz

Personnel

2004: 120

Aviation

Five ex-US Air Force Cessna O-2A observation aircraft operate in a maritime surveillance role.

PATROL FORCES

Notes: There are also four research ships, *Benguela, Welwitschia, Nautilus II* and *Kuiseb*.

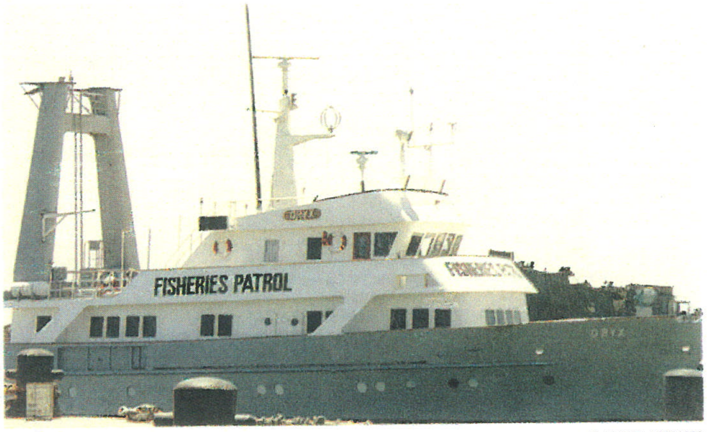
1 PATROL SHIP (PBO)

Name	*No*	*Builders*	*Commissioned*
ORYX (ex-*S to S*)	—	Burmeister/Abeking & Rasmussen	May 1975

Displacement, tons: 406 full load
Dimensions, feet (metres): 149.9 × 28.9 × 7.9 *(45.7 × 8.8 × 2.4)*
Main machinery: 2 Deutz RSBA 16M diesels; 2,000 hp(m) *(1.47 MW)*; 1 shaft; cp prop; bow thruster
Speed, knots: 14. **Range, miles:** 4,100 at 11 kt
Complement: 20 (6 officers)
Guns: 1—12.7 mm MG.
Radars: Surface search: Furuno ARPA FR 1525; I-band.
Navigation: Furuno FR 805D; I-band.

Comment: Built for the Nautical Investment Company, Panama and used as a yacht by the Managing Director of Fiat. Acquired in 1993 by Namibia. Replaced by *Nathanael Maxwilili* in fishery protection role and now operates as general patrol ship.

UPDATED



ORYX *6/1997* / 0081282

1 OSPREY FV 710 CLASS (PBOH)

Name	*No*	*Builders*	*Commissioned*
TOBIAS HAINYEKO (ex-*Havørnen*)	–	Frederikshavn Vaerft	July 1979

Displacement, tons: 505 full load
Dimensions, feet (metres): 164 × 34.5 × 9 *(50 × 10.5 × 2.8)*
Main machinery: 2 Burmeister & Wain Alpha 16V23L diesels; 4,640 hp(m) *(3.41 MW)*; 2 shafts; cp props
Speed, knots: 20. **Range, miles:** 4,000 at 15 kt
Complement: 15 plus 20 spare
Radars: Surface search: Furuno ARPA FR 1525; I-band.
Navigation: Furuno FRM 64; I-band.

Comment: Donated by Denmark in late 1993, retaining some Danish crew. Recommissioned 15 December 1994. The helicopter deck can handle up to Lynx size aircraft and there is a slipway on the stern for launching an RIB. Similar ships in service in Greece and Morocco.
VERIFIED

TOBIAS HAINYEKO *12/1994, Harald Carstens* / 0081283

1 PATROL SHIP (PBOH)

Name	*Builders*	*Commissioned*
NATHANAEL MAXWILILI	Moen Slip AS, Kolvereid, Norway	14 May 2002

Measurement, tons: 380 dwt
Dimensions, feet (metres): 189.0 × 41.0 × 13.8 *(57.6 × 12.5 × 4.2)*
Main machinery: 2 Deutz SBV8M diesel; 4,063 hp *(3.03 MW)*; 2 shafts; Kamewa Ulstein bow thruster
Speed, knots: 17
Radars: Furuno FR-2125; I-band.
Helicopters: Platform only.

Comment: Ordered in 1999. Financed by NORAD (Norwegian Agency for Development Co-Operation). Equipped with inspection craft for fishery protection role.
NEW ENTRY

NATO

Overview

The North Atlantic Treaty Organisation (NATO) was formed under Article 9 of the North Atlantic Treaty signed on 4 April 1949. Now comprising 26 members, the original signatories were Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, Netherlands, Norway, Portugal, UK and US. Greece and Turkey were admitted to the alliance in 1952, West Germany in 1955, and Spain in 1982. In 1990 the newly unified Germany replaced West Germany. Three former members of the Warsaw Pact, Czech Republic, Hungary and Poland were admitted in 1999. Seven further countries, Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia and Slovenia, became members on 29 March 2004. A new NATO-Russia council was inaugurated on 28 May 2002. The 'Council of 20' replaced the 19 + 1 format of the Permanent Joint Council established in 1997.

RESEARCH SHIPS

1 RESEARCH SHIP (AGOR)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ALLIANCE	A 1456	Fincantieri, Muggiano	9 July 1986	6 May 1988

Displacement, tons: 2,466 standard; 3,180 full load
Dimensions, feet (metres): 305.1 × 49.9 × 17.1 *(93 × 15.2 × 5.2)*
Main machinery: Diesel-electric; 2 Fincantieri GMT B 230.12 M diesels; 6,079 hp(m) *(4.47 MW)* sustained; 2 AEG CC 3127 generators; 2 AEG motors; 4,039 hp(m) *(2.97 MW)* sustained; 2 shafts; bow thruster
Speed, knots: 16. **Range, miles:** 7,200 at 11 kt
Complement: 24 (10 officers) plus 23 scientists
Radars: Navigation: 2 Kelvin Hughes ARPA; E/F- and I-bands.
Sonars: TVDS towed active VDS 200 Hz-4 kHz; medium and low frequency passive towed line arrays.

Comment: Built at La Spezia. NATO's first wholly owned ship is a Public Service vessel of the German Navy with a German, British and Italian crew. Designed for oceanography and acoustic research. Based at La Spezia and operated by SACLANT Undersea Research Centre. Facilities include extensive laboratories, position location systems, silent propulsion, and overside deployment equipment. Can tow a 20 ton load at 12 kt. A Kongsberg gas turbine on 02 deck provides silent propulsion power at 1,945 hp *(1.43 MW)* up to speeds of 12 kt. Atlas hydrosweep side scan echo-sounder fitted in 1993. Qubit KH TRAC integrated navigational system fitted in 1995. Carries two Watercraft R6 RIBs. Similar ships in Taiwan Navy and building for Italy.
VERIFIED

ALLIANCE *4/1999, Giorgio Ghiglione* / 0081284

1 COASTAL RESEARCH VESSEL (AGOR(C))

Name	*No*	*Builders*	*Commissioned*
LEONARDO	A 5390	McTay Marine Ltd	6 Sep 2002

Displacement, tons: 393 full load
Dimensions, feet (metres): 93.8 × 29.5 × 8.2 *(28.6 × 9.0 × 2.5)*
Main machinery: Diesel-electric; 1,570 hp *(1,170 kW)*; 2 azimuth thrusters; 1—360° bow thruster
Speed, knots: 11. **Range, miles:** 1,500 at 11 kt
Complement: 5 + 7 scientific staff
Radars: Navigation: 2 sets; I-band.
Sonars: Kongsberg Simrad multibeam echo-sounders.

Comment: The order for a coastal underwater research vessel was placed by SACLANT Undersea Research Centre in December 2000. Designed by Corlett and Partners, construction of the hull was undertaken by Remontowa in Poland while the superstructure and final assembly was undertaken by the prime contractor, McTay Marine Ltd. The ship is equipped with a moon pool, oceanographic winches, two cranes and Kongsberg navigation/research suite. A 20 ft container can be embarked to augment the main scientific laboratory. Based at La Spezia, the vessel is the first Italian Public Service vessel.
UPDATED

LEONARDO *5/2003**, *Giorgio Ghiglione* / 0561510

Netherlands

Country Overview

The Kingdom of the Netherlands is situated in north-western Europe. With an area of 16,033 square miles, it is bordered to the east by Germany and to the south by Belgium. It has a 244 n mile coastline with the North Sea. The country also includes the self-governing Caribbean territories of Netherlands Antilles and Aruba. The seat of government is at The Hague while Amsterdam is the official capital, largest city and a major port. Rotterdam is one of the world's leading seaports. Both ports are linked both to the North Sea and to a comprehensive system of inland waterways whose total length is some 2,725 n miles. Territorial seas (12 n miles) are claimed. An EEZ and a Fishery Zone (200 n miles) have also been declared.

Headquarters Appointments

Chief of Defence Staff:
Admiral L Kroon
Commander in Chief:
Vice Admiral R A A Klaver
Deputy Commander in Chief:
Rear Admiral J W Kelder
Director, Material (Navy):
Rear Admiral P M van der Struis
Director, Personnel (Navy):
Rear Admiral R T B Visser

Commands

Admiral Netherlands Fleet Command:
Vice Admiral J van der Aa
Commander Belgium — Netherlands Task Group::
Commodore P S Bedet
Commandant Royal Netherlands Marine Corps:
Major General W A J Prins
Flag Officer Netherlands Forces Antilles:
Brigadier R L Zuiderwijk

Diplomatic Representation

Naval Attaché in London and Lisbon:
Captain M C Wouters
Naval Attaché in Madrid and Rabat:
Captain P P Metzelaar
Naval Attaché in Ankara:
Captain R Bloemendaal
Naval Attaché in Washington:
Captain V C Windt

Diplomatic Representation — *continued*

Naval Attaché in Oslo, Stockholm and Helsinki:
Commander S C Barends
Naval Attaché in the Gulf:
Lieutenant Colonel H J van der Maas, RNLMC
Naval Attaché in Caracas, Brasilia, Georgetown and Paramaribo:
Commander A Brokke
Naval Attaché in Baltic States and Finland:
Commander B J Gerrits
Naval Attaché in Berlin:
Commander M G M Hendriks Vettehen
Naval Attaché in Budapest and Sofia:
Commander S J Hoekstra Bonnema

Personnel

(a) 2004: 8,450 naval and 3,150 Marines
(b) Voluntary service

Bases

Naval HQ: The Hague
Main Base: Den Helder
Minor Bases: Flushing, Amsterdam, Rotterdam and Curaçao
Fleet Air Arm: NAS Valkenburg (LRMP),
NAS De Kooy (helicopters)
R Neth Marines: Rotterdam, Doorn and Texel, Aruba

Naval Air Arm

Squadron	*Aircraft*	*Task*
7	Lynx (SH-14)	Utility and Transport/SAR
320/321	P-3C Orion	LRMP
860	Lynx (SH-14D)	Embarked

Royal Netherlands Marine Corps

Four (one in reserve) Marine battalions; one combat support battalion, one logistic battalion and one amphibious support battalion. Based at Doorn and in the Netherlands Antilles and Aruba.

Prefix to Ships' Names

Hr Ms

Strength of the Fleet

Type	*Active*	*Building (Projected)*
Submarines	4	—
Frigates	14	—
Mine Hunters	10	—
Submarine Support Ship	1	—
Amphibious Transport Ship (LPD)	1	(1)
Landing Craft	11	—
Survey Ships	1	(2)
Combat Support Ships	2	(1)
Training Ships	2	—

Fleet Disposition

Operational Control of Belgium and Netherlands surface forces is under Admiral Benelux Command at Den Helder.

(1) Two Task Groups, each with two air defence frigates, four Karel Doormans, one AOR, two SSK, 10 helicopters and five MPA.
(2) One amphibious transport ship.
(3) MCMV of 10 'Alkmaar' class.
(4) Marine force of two battalions (arctic trained), one battalion for Antilles and Aruba, one battalion in reserve.
(5) One hydrographic and one oceanographic vessel.

DELETIONS

Frigates

2001	*Pieter Florisz* (to Greece), *Jan Van Brakel* (to Greece), *De Ruyter* (old)
2002	*Philips van Almonde* (to Greece)
2003	*Bloys van Treslong*

Mine Warfare Forces

2003	*Harlingen, Scheveningen*

Survey Ships

2003	*Buyskes*
2004	*Tydeman*

PENNANT LIST

Submarines

S 802	Walrus
S 803	Zeeleeuw
S 808	Dolfijn
S 810	Bruinvis

Frigates

F 802	De Zeven Provincien
F 803	Tromp
F 804	De Ruyter
F 805	Evertsen (bldg)
F 812	Jacob van Heemskerck
F 813	Witte de With
F 827	Karel Doorman
F 828	Van Speijk
F 829	Willem van der Zaan
F 830	Tjerk Hiddes
F 831	Van Amstel
F 832	Abraham van der Hulst
F 833	Van Nes
F 834	Van Galen

Mine Warfare Vessels

M 853	Haarlem
M 856	Maassluis
M 857	Makkum
M 858	Middelburg
M 859	Hellevoetsluis
M 860	Schiedam
M 861	Urk
M 862	Zierikzee
M 863	Vlaardingen
M 864	Willemstad

Amphibious Forces

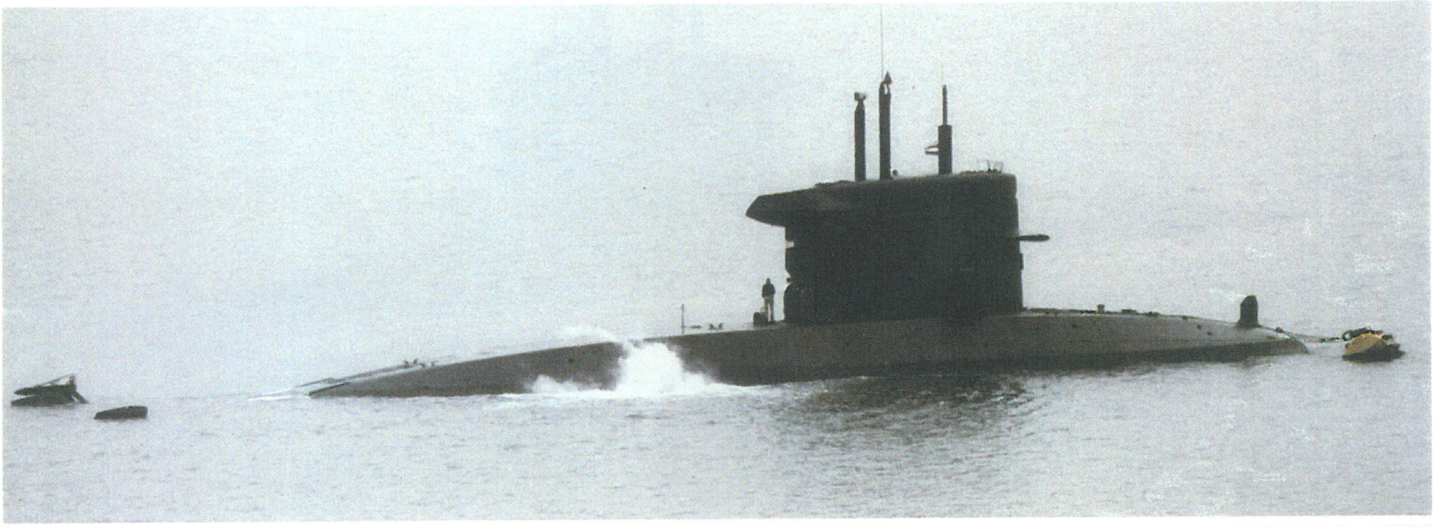
L 800	Rotterdam
L 801	Johan De Witt (bldg)

Auxiliaries

A 801	Pelikaan
A 802	Snellius
A 803	Luymes
A 832	Zuiderkruis
A 836	Amsterdam
A 851	Cerberus
A 852	Argus
A 853	Nautilus
A 854	Hydra
A 874	Linge
A 875	Regge
A 876	Hunze
A 877	Rotte
A 878	Gouwe
A 887	Thetis
A 900	Mercuur
A 902	Van Kinsbergen
Y 8005	Nieuwediep
Y 8018	Breezand
Y 8019	Balgzand
Y 8050	Urania
Y 8055	Schelde
Y 8056	Wierbalg
Y 8057	Malzwin
Y 8058	Zuidwal
Y 8059	Westwal
Y 8760	Patria

SUBMARINES

Notes: The 'Moray' class is a private design by Rotterdam Drydock with the government giving limited financial support on condition that the company collaborates with developers of air independent systems (AIP).

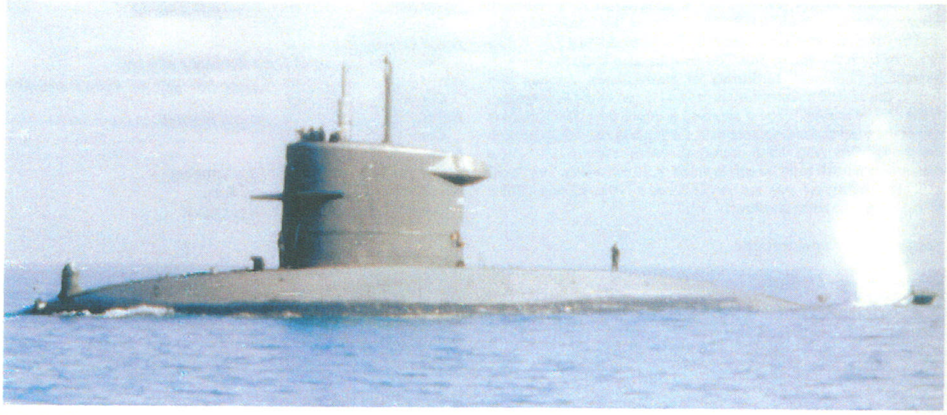


ZEELEEUW

11/2001, B Sullivan / 0534110

4 WALRUS CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
WALRUS	S 802	Rotterdamse Droogdok Mij, Rotterdam	11 Oct 1979	26 Oct 1985 (13 Sep 1989)	25 Mar 1992
ZEELEEUW	S 803	Rotterdamse Droogdok Mij, Rotterdam	24 Sep 1981	20 June 1987	25 Apr 1990
DOLFIJN	S 808	Rotterdamse Droogdok Mij, Rotterdam	12 June 1986	25 Apr 1990	29 Jan 1993
BRUINVIS	S 810	Rotterdamse Droogdok Mij, Rotterdam	14 Apr 1988	25 Apr 1992	5 July 1994



BRUINVIS

10/2003, Camil Busquets i Vilanova* / 0576320

Displacement, tons: 2,465 surfaced; 2,800 dived
Dimensions, feet (metres): 223.1 × 27.6 × 23 *(67.7 × 8.4 × 7)*
Main machinery: Diesel-electric; 3 SEMT-Pielstick 12 PA4 200 VG diesels; 6,300 hp(m) *(4.63 MW)*; 3 alternators; 2.88 MW; 1 Holec motor; 6,910 hp(m) *(5.1 MW)*; 1 shaft
Speed, knots: 12 surfaced; 20 dived
Range, miles: 10,000 at 9 kt snorting
Complement: 52 (7 officers)

Missiles: SSM: McDonnell Douglas Sub Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
Torpedoes: 4—21 in *(533 mm)* tubes. Honeywell Mk 48 Mod 4; wire-guided; active/passive homing to 38 km *(20.5 n miles)* active at 55 kt; 50 km *(27 n miles)* passive at 40 kt; warhead 267 kg; 20 torpedoes or missiles carried. Mk 19 Turbine ejection pump. Mk 67 water-ram discharge.
Mines: 40 in lieu of torpedoes.
Countermeasures: ESM: ARGOS 700; radar warning.
Weapons control: Signaal SEWACO VIII action data automation. Signaal Gipsy data system. GTHW integrated Harpoon and Torpedo FCS.
Radars: Surface search: Signaal/Racal ZW07; I-band.
Sonars: Thomson Sintra TSM 2272 Eledone Octopus; hull-mounted; passive/active search and attack; medium frequency.
GEC Avionics Type 2026; towed array; passive search; very low frequency.
Thomson Sintra DUUX 5; passive ranging and intercept.

Programmes: Contract for the building of the first was signed 16 June 1979, the second was on 17 December 1979. In 1981 various changes to the design were made which resulted in a delay of one to two years. *Dolfijn* and *Bruinvis* ordered 16 August 1985; prefabrication started late 1985. Completion of *Walrus* delayed by serious fire 14 August 1986; hull undamaged but cabling and computers destroyed. *Walrus* relaunched 13 September 1989.
Modernisation: A snort exhaust diffuser was fitted to *Zeeleeuw* in 1996. The rest of the class have been similarly modified.
Structure: These are improved 'Zwaardvis' class with similar dimensions and silhouettes except for X stern. Use of H T steel increases the diving depth by some 50 per cent. Diving depth, 300 m *(984 ft)*. Pilkington Optronics CK 24 search and CH 74 attack periscopes.
Operational: Weapon systems evaluations completed 1990-93. Sub Harpoon is not carried.

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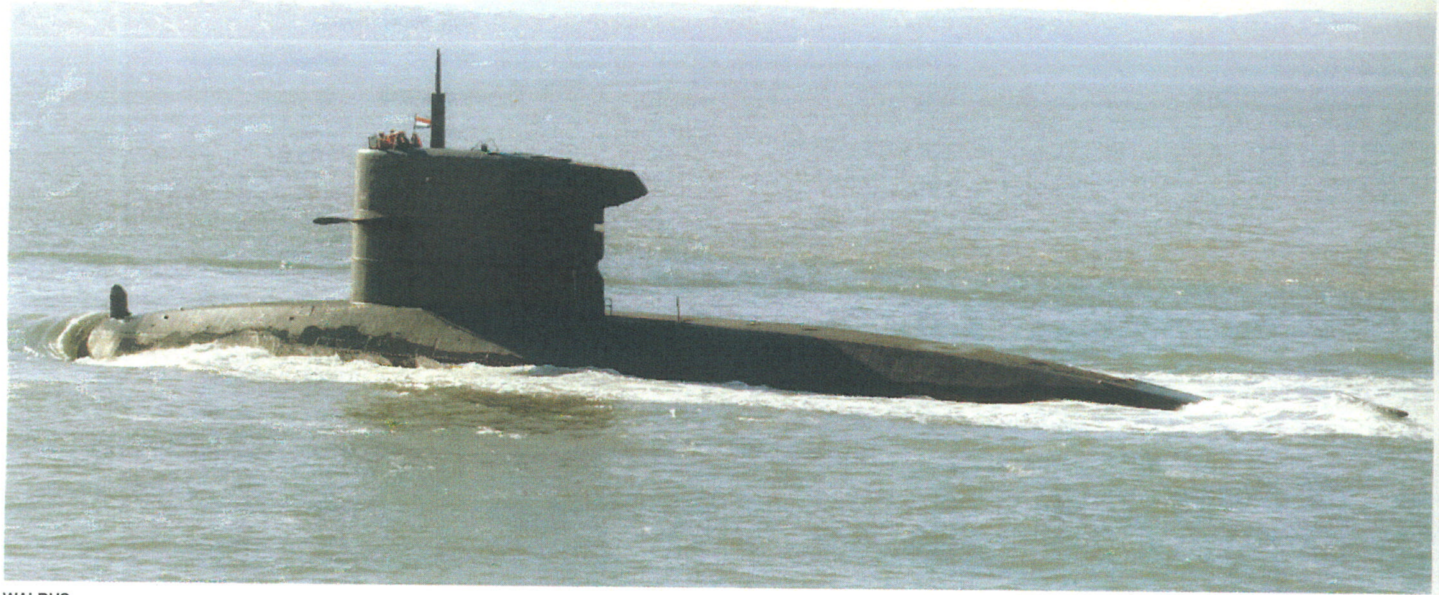
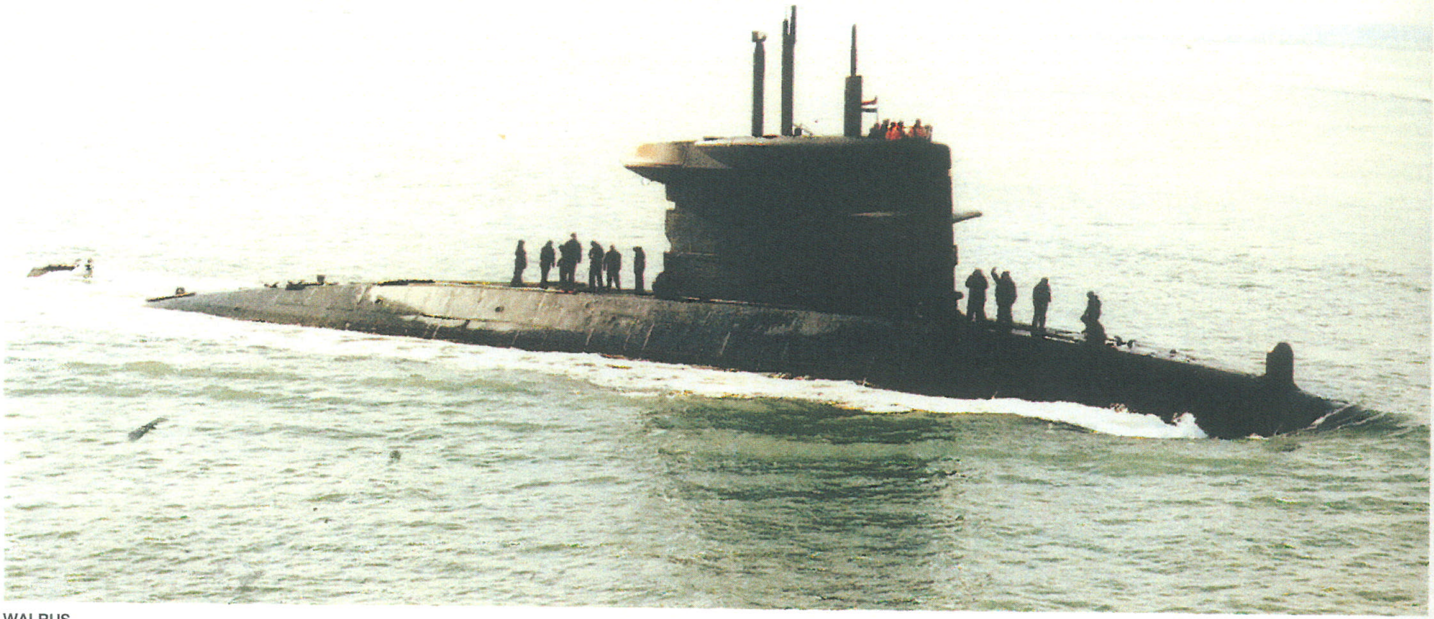


WALRUS

10/2003, Maritime Photographic* / 0569208



WALRUS

10/2003, Marianne Ferrette* / 0569221

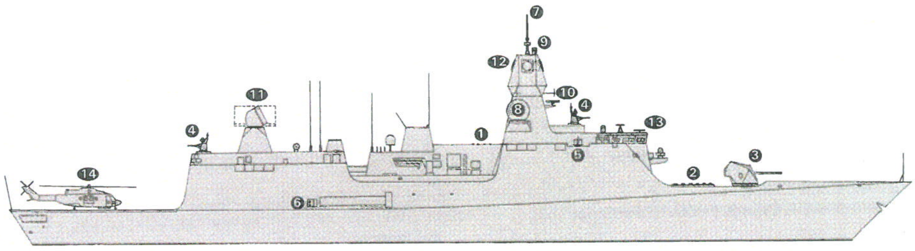
FRIGATES

3 + 1 DE ZEVEN PROVINCIEN CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
DE ZEVEN PROVINCIEN	F 802	Royal Schelde, Vlissingen	1 Sep 1998	8 Apr 2000	26 Apr 2002
TROMP	F 803	Royal Schelde, Vlissingen	3 Sep 1999	7 Apr 2001	14 Mar 2003
DE RUYTER	F 804	Royal Schelde, Vlissingen	1 Sep 2000	13 Apr 2002	Mar 2004
EVERTSEN	F 805	Royal Schelde, Vlissingen	6 Sep 2001	19 Apr 2003	Mar 2005

Displacement, tons: 6,048 full load
Dimensions, feet (metres): 473.1 oa; 428.8 wl × 61.7 × 17.1 *(144.2; 130.7 × 18.8 × 5.2)*
Flight deck, feet (metres): 88.6 × 61.7 *(27 × 18.8)*
Main machinery: CODOG; 2 RR SM1C Spey; 52,300 hp *(39 MW)* sustained; 2 Stork-Wärtsilä 16V 26 ST diesels; 13,600 hp(m) *(10 MW)*; 2 shafts; LIPS; cp props
Speed, knots: 28. **Range, miles:** 5,000 at 18 kt
Complement: 204 (32 officers) including staff

Missiles: SSM: 8 Harpoon ❶.
SAM: Mk 41 VLS (40 cells) ❷; 32 Standard SM2-MR (Block IIIA); command/inertial guidance; semi-active radar homing to 167 km *(90 n miles)* at 2 Mach.
32 Evolved Sea Sparrow (quad pack); semi-active radar homing to 18 km *(9.7 n miles)* at 3.6 Mach; warhead 39 kg.
Guns: 1 Otobreda 5 in *(127 mm)*/54 ❸; 45 rds/min to 23 km *(12.42 n miles)* anti-surface; 7 km *(3.8 n miles)* anti-aircraft; weight of shell 32 kg. 2 Thales Goalkeeper 30 mm ❹; 4,200 rds/min to 1.5 km. 2 Oerlikon 20 mm ❺.
Torpedoes: 4—323 mm (2 twin) Mk 32 Mod 9 fixed launchers ❻. Mk 46 Mod 5 torpedoes.
Countermeasures: 4 SRBOC Mk 36 chaff launchers; Nixie torpedo decoy.
ESM/ECM: Racal Sabre ❼; intercept/jammer.
Combat data systems: CAMS Force Vision SEWACO XI; Link 11/16; SATCOMS ❽.
Weapons control: Thales Sirius IRST optronic director ❾.
Thales Mirador Trainable Electro-Optical Observation System (TEOOS) ❿.



DE ZEVEN PROVINCIEN *(Scale 1 : 1,200), Ian Sturton /* 0569256

Radars: Air search: Thales SMART L ⓫; 3D; D-band.
Air/surface search/fire control: Thales APAR ⓬; I/J-band.
Surface search: Thales Scout ⓭; I-band.
IFF: Mk XII.
Sonars: STN Atlas DSQS 24C; bow-mounted; active search and attack; medium frequency.

Helicopters: 1 NH90 NFH/Lynx ⓮.

Programmes: Project definition awarded to Royal Schelde on 15 December 1993 with a contract for first two ships and detailed design following on 30 June 1995. Second pair ordered 5 February 1997. Shipyards in Germany (ARGE for Type 124) collaborated to achieve some commonality of design and equipment.
Structure: As well as the listed equipment the ship is to have an electro-optic surveillance system and a navigation radar. The Scout radar is a Low Probability Intercept (LPI) set. High standards of stealth and NBC protection are part of the design. DCN Samahé helicopter handling system.
Operational: The first two ships are fitted as flagships, in which role they replace the old 'Tromp' class. The second pair do not have the same command facilities. NFH 90 helicopter planned for 2007.

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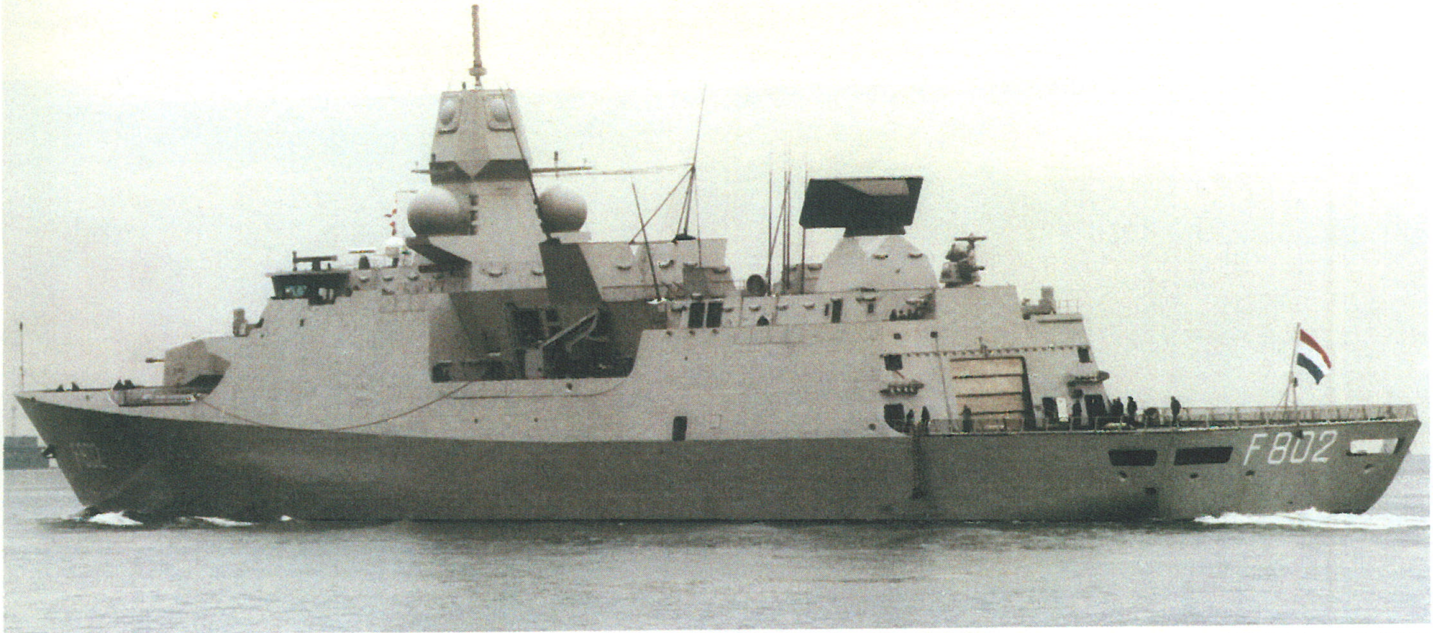
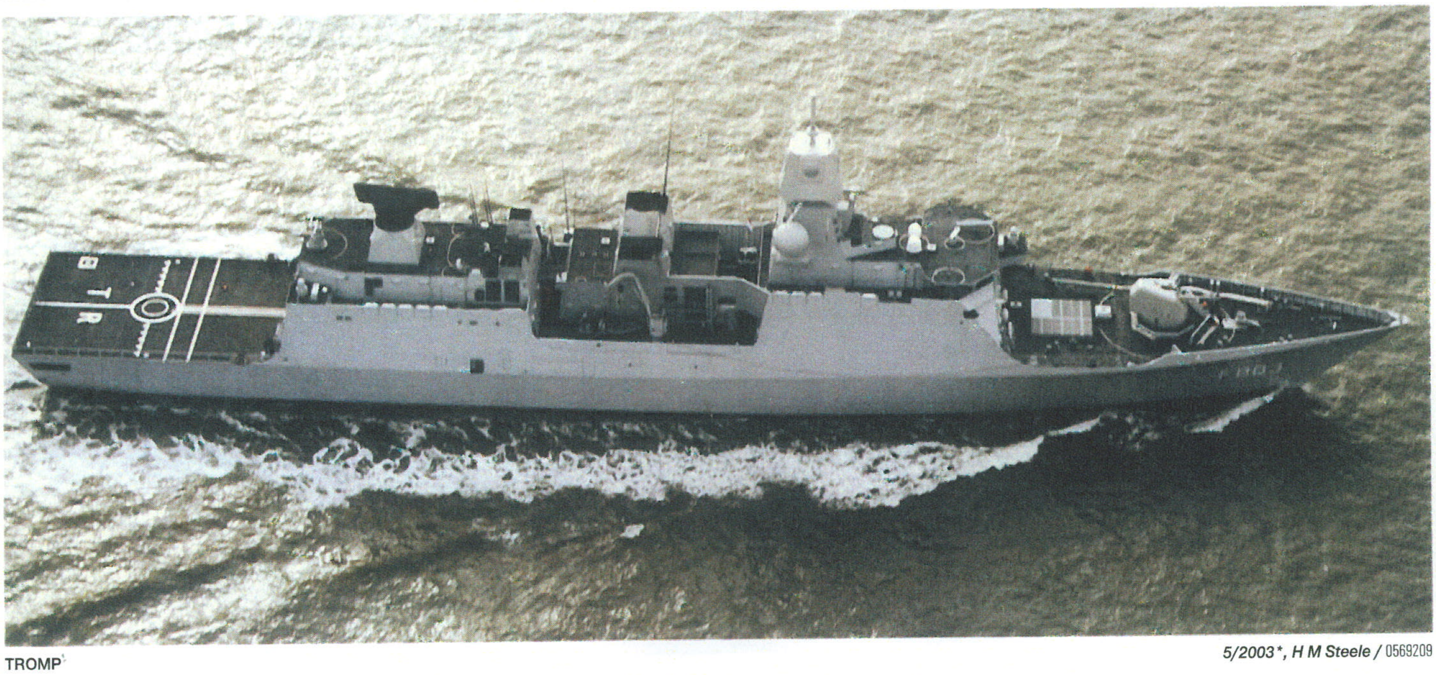


DE ZEVEN PROVINCIEN *3/2002, John Brodie /* 0534109



TROMP *5/2003*, H M Steele /* 0569209

8 KAREL DOORMAN CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
KAREL DOORMAN	F 827	Koninklijke Maatschappij De Schelde, Flushing	26 Feb 1985	20 Apr 1988	31 May 1991
WILLEM VAN DER ZAAN	F 829	Koninklijke Maatschappij De Schelde, Flushing	6 Nov 1985	21 Jan 1989	28 Nov 1991
TJERK HIDDES	F 830	Koninklijke Maatschappij De Schelde, Flushing	28 Oct 1986	9 Dec 1989	3 Dec 1992
VAN AMSTEL	F 831	Koninklijke Maatschappij De Schelde, Flushing	3 May 1988	19 May 1990	27 May 1993
ABRAHAM VAN DER HULST	F 832	Koninklijke Maatschappij De Schelde, Flushing	8 Feb 1989	7 Sep 1991	15 Dec 1993
VAN NES	F 833	Koninklijke Maatschappij De Schelde, Flushing	10 Jan 1990	16 May 1992	2 June 1994
VAN GALEN	F 834	Koninklijke Maatschappij De Schelde, Flushing	7 June 1990	21 Nov 1992	1 Dec 1994
VAN SPEIJK	F 828	Koninklijke Maatschappij De Schelde, Flushing	1 Oct 1991	26 Mar 1994	7 Sep 1995

Displacement, tons: 3,320 full load
Dimensions, feet (metres): 401.2 oa; 374.7 wl × 47.2 × 14.1 *(122.3; 114.2 × 14.4 × 4.3)*
Flight deck, feet (metres): 72.2 × 47.2 *(22 × 14.4)*
Main machinery: CODOG; 2 RR Spey SM1C; 33,800 hp *(25.2 MW)* sustained (early ships of the class will initially only have SM1A gas generators and 30,800 hp *(23 MW)* sustained available); 2 Stork-Wärtsilä 12SW280 diesels; 9,790 hp(m) *(7.2 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 30 (Speys); 21 (diesels)
Range, miles: 5,000 at 18 kt
Complement: 156 (16 officers) (accommodation for 163)

Missiles: SSM: 8 McDonnell Douglas Harpoon Block 1C (2 quad) launchers ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: Raytheon Sea Sparrow Mk 48 vertical launchers ❷; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg; 16 missiles. Canisters mounted on port side of hangar.
Guns: 1—3 in *(76 mm)*/62 OTO Melara compact Mk 100 ❸; 100 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg. This is the version with an improved rate of fire.
1 Signaal SGE-30 Goalkeeper with General Electric 30 mm 7-barrelled ❹; 4,200 rds/min combined to 2 km.
2 Oerlikon 20 mm; 800 rds/min to 2 km.
Torpedoes: 4—324 mm US Mk 32 Mod 9 (2 twin) tubes (mounted inside the after superstructure) ❺. Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-tubed fixed Mk 36 quad launchers; IR flares and chaff to 4 km *(2.2 n miles)*.
SLQ-25 Nixie towed torpedo decoy.
ESM/ECM: Argo APECS II (includes AR 700 ESM) ❻; intercept and jammers.
Combat data systems: Signaal SEWACO VIIB action data automation; Link 11. SATCOM ❼. WSC-6 twin aerials.
Weapons control: Signaal IRSCAN infra-red detector (fitted in F 829 for trials and may be retrofitted in all in due course). Signaal VESTA helo transponder.
Radars: Air/surface search: Signaal SMART ❽; 3D; F-band.
Air search: Signaal LW08 ❾; D-band.
Surface search: Signaal Scout ❿; I-band.
Navigation: Racal Decca 1226; I-band.
Fire control: 2 Signaal STIR ⓫; I/J/K-band; range 140 km *(76 n miles)* for 1 m² target.

Sonars: Signaal PHS-36; hull-mounted; active search and attack; medium frequency.
Thomson Sintra Anaconda DSBV 61; towed array; passive low frequency. LFAS may be fitted in due course.

Helicopters: 1 Westland SH-14 Lynx ⓬.

Programmes: Declaration of intent signed on 29 February 1984 although the contract was not signed until 29 June 1985 by which time the design had been completed. A further four ordered 10 April 1986. Names were shuffled to make the new *Van Speijk* the last of the class but she retained her allocated pennant number.
Modernisation: SEWACO VII(A) operational from January 1992 and VII(B) from mid-1994. By 1994 all fitted with APECS II EW system and DSBV 61 towed array. IRSCAN infrared detector fitted on hangar roof in *Willem van der Zaan* for trials in 1993. SHF SATCOM based on the USN WSC-6, with twin aerials providing a 360° coverage even at high latitudes. Scout radar fitted on bridge roof in 1997. Research into the fitting of low frequency active sonar is being conducted although a system is not expected to be fitted before 2010.
Structure: The VLS SAM is similar to Canadian 'Halifax' and Greek 'MEKO' classes. The ship is designed to reduce radar and IR signatures and has extensive NBCD arrangements. Full automation and roll stabilisation fitted. The APECS jammers are mounted starboard forward of the bridge and port aft corner of the hangar. The SAM launchers have been given added protection and better stealth features with a flat screen in some of the class.
Operational: Two ships may be decommissioned in 2004 pending a navy force structure review. Subsequent sale to Chile is a possibility.

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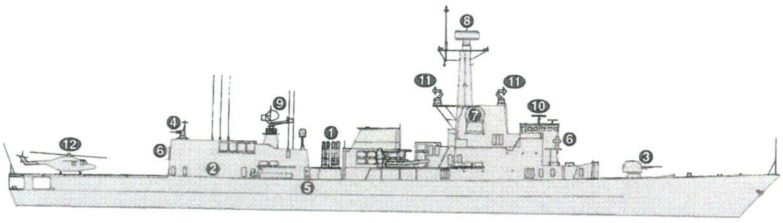
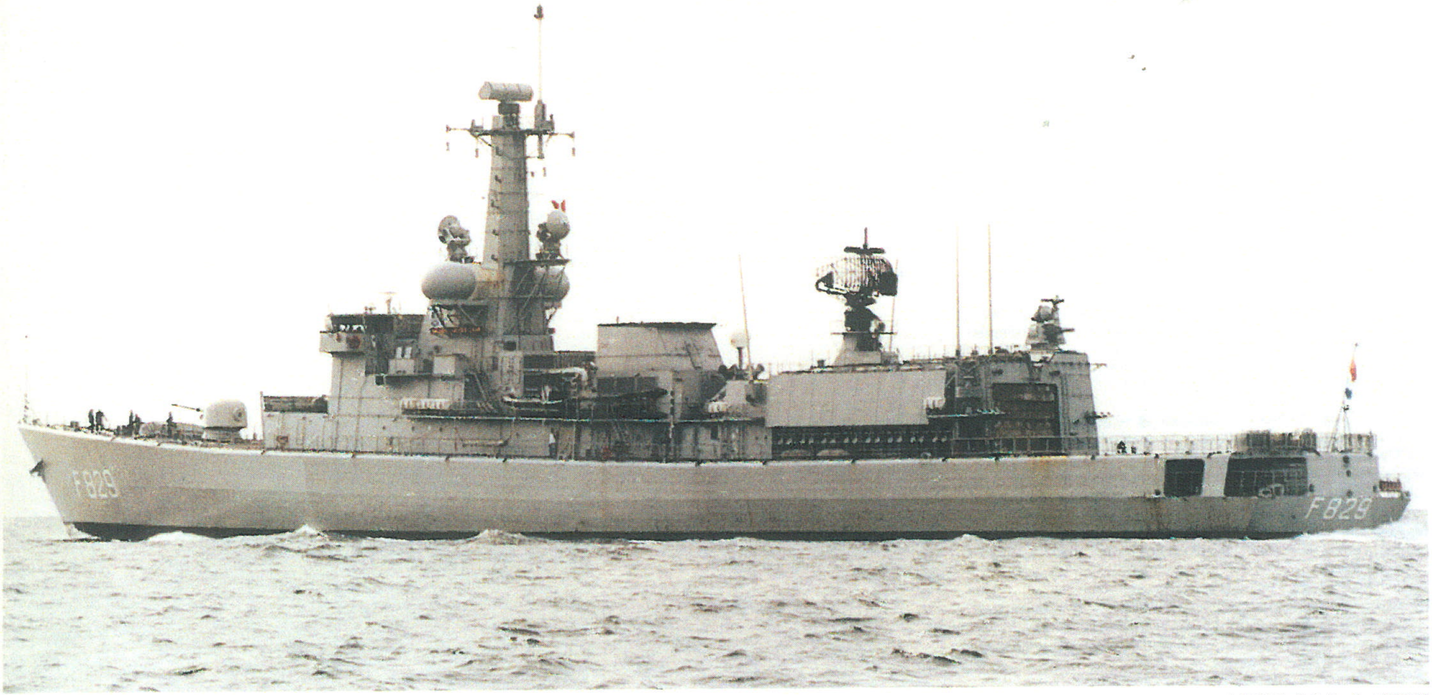


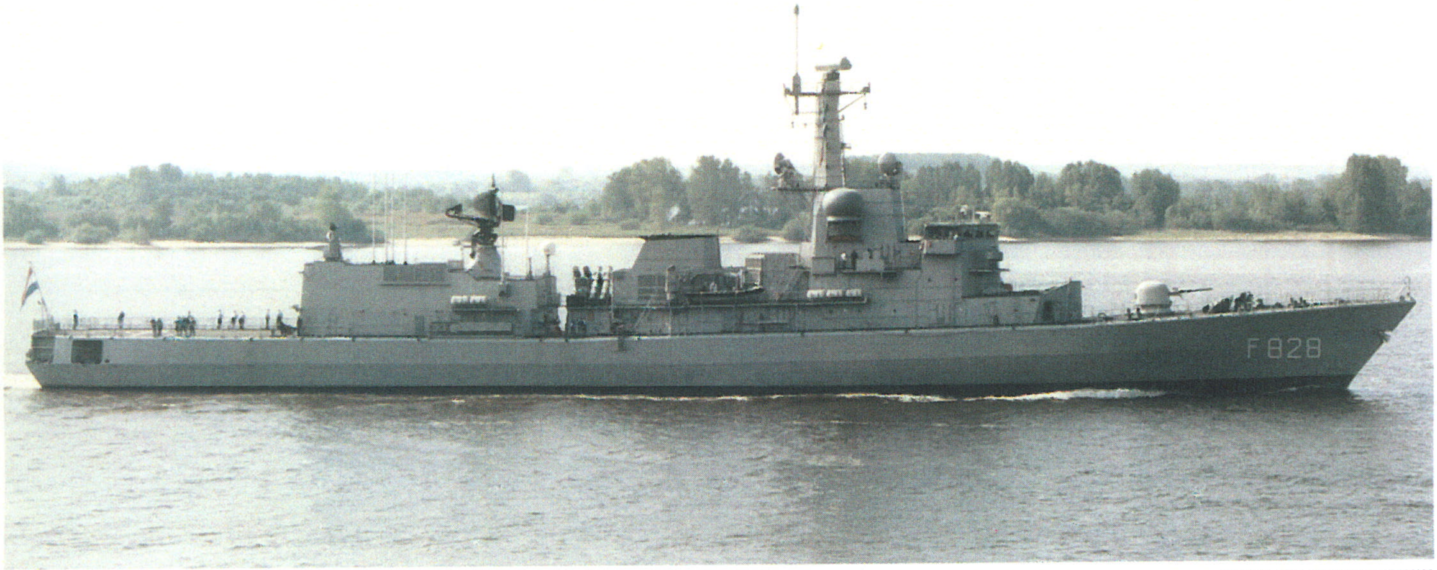
VAN SPEIJK
(Scale 1 : 1,200), Ian Sturton / 0012800

TJERK HIDDES
5/2003, H M Steele* / 0569205

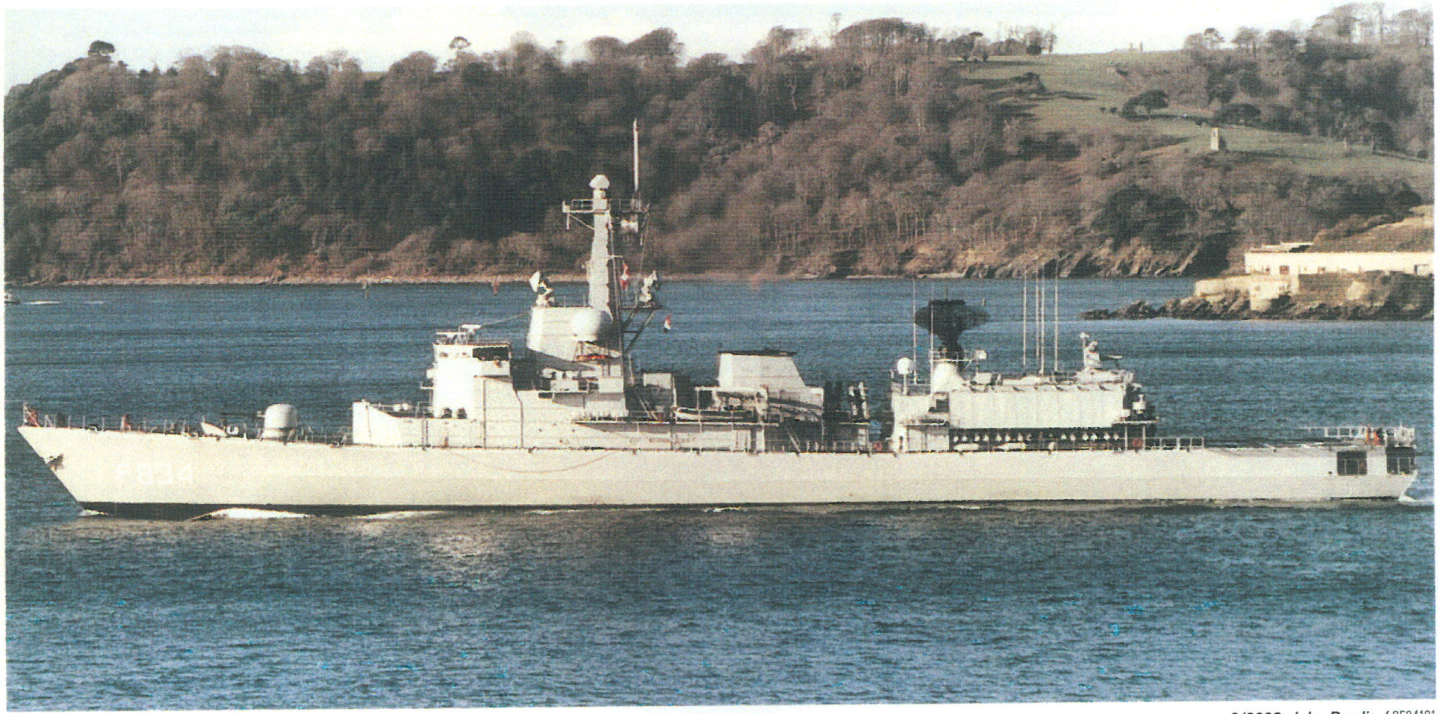
KAREL DOORMAN
1/2003, John Brodie* / 0569219



WILLEM VAN DER ZAAN *6/2002*, B Prézelin* / 0569220



VAN SPEIJK *5/2002, Frank Findler* / 0534100



VAN GALEN *2/2002, John Brodie* / 0534101

2 JACOB VAN HEEMSKERCK CLASS (FFGM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
JACOB VAN HEEMSKERCK	F 812	Koninklijke Maatschappij De Schelde, Flushing	21 Jan 1981	5 Nov 1983	15 Jan 1986
WITTE DE WITH	F 813	Koninklijke Maatschappij De Schelde, Flushing	15 Dec 1981	25 Aug 1984	17 Sep 1986

Displacement, tons: 3,750 full load approx
Dimensions, feet (metres): 428 × 47.9 × 14.1 (20.3 screws) *(130.5 × 14.6 × 4.3 (6.2))*
Main machinery: COGOG; 2 RR Olympus TM3B gas turbines; 50,880 hp *(37.9 MW)* sustained
2 RR Tyne RM1C gas turbines; 9,900 hp *(7.4 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 30. **Range, miles:** 4,700 at 16 kt on Tynes
Complement: 197 (23 officers)
Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: 40 GDC Pomona Standard SM-1MR; Block IV; Mk 13 Mod 1 launcher ❷; command guidance; semi-active radar homing to 46 km *(25 n miles)* at 2 Mach.
Raytheon Sea Sparrow Mk 29 octuple launcher ❸; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg; 24 missiles.
Guns: 1 Signaal SGE-30 Goalkeeper ❹ with General Electric 30 mm 7-barrelled; 4,200 rds/min combined to 2 km.
2 Oerlikon 20 mm.
Torpedoes: 4—324 mm US Mk 32 (2 twin) tubes ❺. Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor Mk 36 SRBOC 6-tubed fixed quad launchers ❻; IR flares and chaff to 4 km *(2.2 n miles)*.
ESM/ECM: Ramses; intercept and jammer.
Combat data systems: Signaal SEWACO VI action data automation; Link 11. SHF SATCOM ❼. JMCIS.
Radars: Air search: Signaal LW08 ❽; D-band; range 264 km *(145 n miles)* for 2 m² target.
Air/surface search: Signaal Smart; 3D ❾; F-band.
Surface search: Signaal Scout ❿; I-band.
Fire control: 2 Signaal STIR 240 ⓫; I/J/K-band; range 140 km *(76 n miles)* for 1 m² target.
Signaal STIR 180 ⓬; I/J/K-band.
Sonars: Westinghouse SQS-509; hull-mounted; active search and attack; medium frequency.

Modernisation: Planned capability upkeep programme (CUP) cancelled. Twin SATCOM terminals fitted in 1993 to F 812, and to F 813 in 1994-95. SMART radar replaced DA05 in F 813 in 1994-95 and in F 812 in 1996-97. The SHF system is based on the USN WSC-6, with twin aerials providing a 360° coverage even at high latitudes.

Operational: Air defence frigates with command facilities for a task group commander and his staff. Both ships earmarked to be decommissioned in 2005 pending a navy force structure review. Both ships may be sold to Chile.

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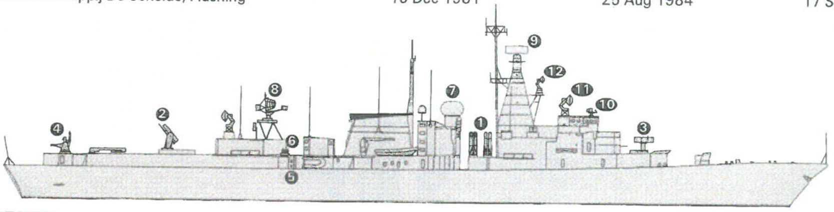


WITTE DE WITH

(Scale 1 : 1,200), Ian Sturton / 0114748

JACOB VAN HEEMSKERCK

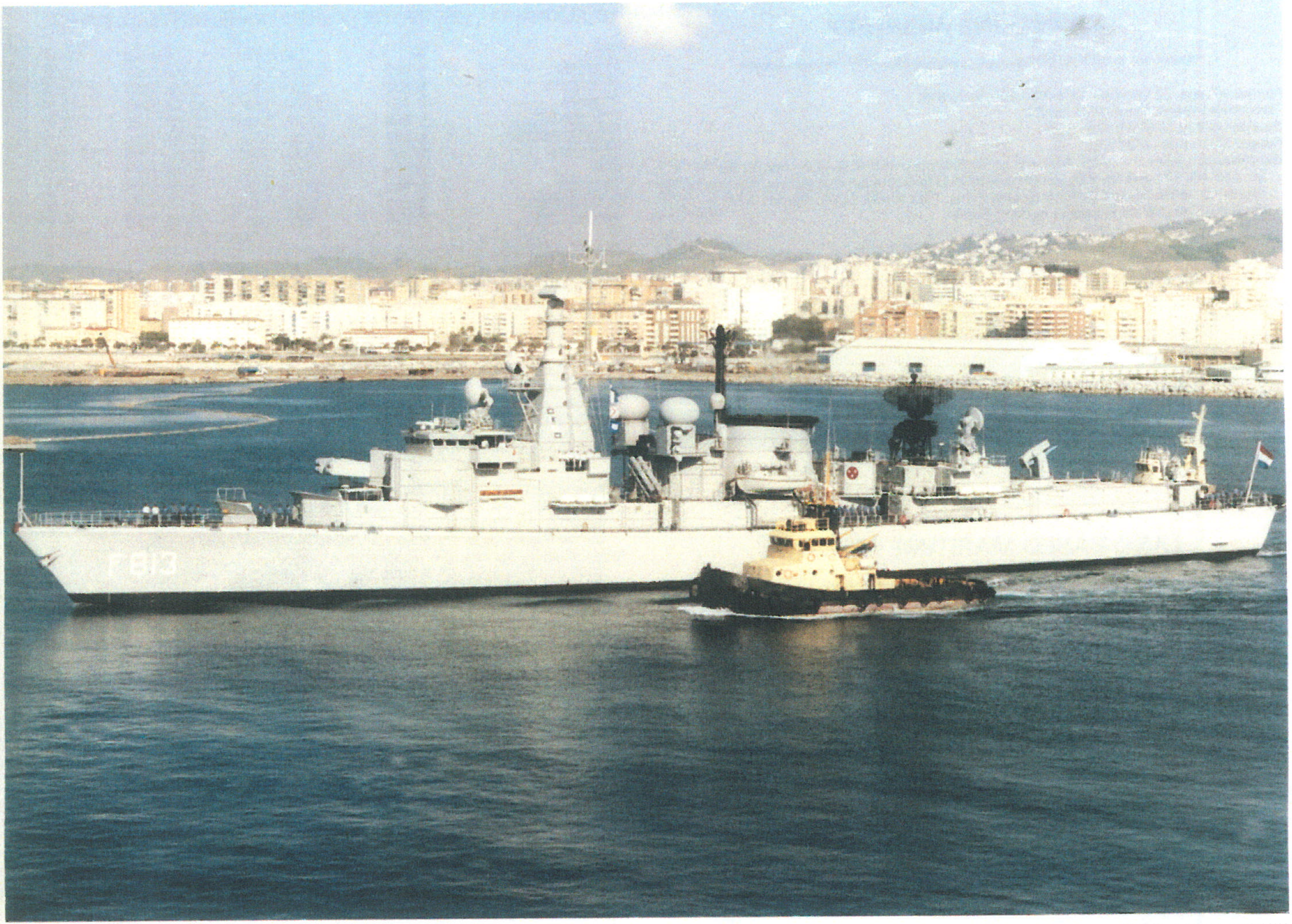
5/2002, Frank Findler / 0534115

JACOB VAN HEEMSKERCK

8/2003, C D Yaylali /* 0576322

JACOB VAN HEEMSKERCK

6/2002, B Prézelin /* 0572432



WITTE DE WITH

4/2002, A Sharma / 0534108

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SHIPBORNE AIRCRAFT

Notes: Up to 20 NFH 90 helicopters planned for 2007 to replace Lynx.

Numbers/Type: 22 Westland Lynx Mks 25B/27A/81A.
Operational speed: 125 kt *(232 km/h).*
Service ceiling: 12,500 ft *(3,810 m).*
Range: 320 n miles *(590 km).*
Role/Weapon systems: ASW, SAR and utility helicopter series all converted to SH-14D type. Mk 25B, Mk 27A and Mk 81A can all be embarked for ASW duties in escorts. Sensors: Ferranti Sea Spray radar, Alcatel DUAV-4 dipping sonar, FLIR Model 2000; Ferranti AWARE-3 ESM. Weapons: Two Mk 46 torpedoes or depth bombs. ***UPDATED***

LYNX *7/2003*, Paul Jackson* / 0569206

LAND-BASED MARITIME AIRCRAFT

Notes: The future of the P-3C force is under consideration pending the outcome of a navy force structure review. Meanwhile they are to remain in service until at least early 2005.

Numbers/Type: 10 Lockheed P-3C/Update II Orion.
Operational speed: 410 kt *(760 km/h).*
Service ceiling: 28,300 ft *(8,625 m).*
Range: 4,000 n miles *(7,410 km).*
Role/Weapon systems: Long-range MR and NATO area ocean surveillance, particularly for ASW/ASV operations. Three serve in the Antilles. Update for seven aircraft between 2001-2006 includes synthetic aperture radar (APS-137B), ESM and communications facilities. The other three may eventually be sold. Sensors: APS-115 radar, AAQ-22 Safire FLIR, AQS-81 MAD, AQA 7 processor, AQS-114 computer, IFF, ECM/ESM, sonobuoys. Weapons: ASW; eight Mk 46 torpedoes, depth bombs or mines. Underwing stations for Harpoon missiles for which procurement is now unlikely. ***UPDATED***

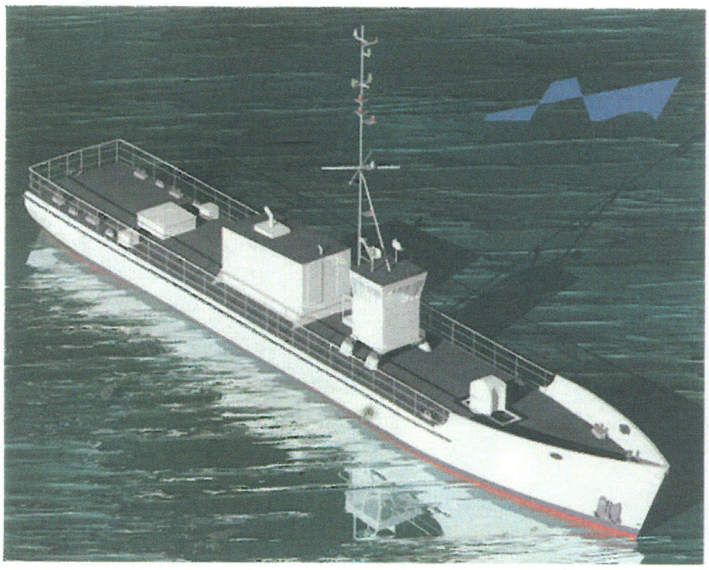
P-3C *1/2003*, Adolfo Ortigueira Gil* / 0569218

MINE WARFARE FORCES

0 + (2) MINESWEEPING DRONES (MSD)

Displacement, tons: 267 full load
Dimensions, feet (metres): 130.6 × 19.2 × 6.9 *(39.8 × 5.86 × 2.1)*
Main machinery: To be decided
Complement: Passage crew

Comment: The requirement for a minesweeping capability is expected to be fulfilled by unmanned minesweeping drones which may be developed in collaboration with an international partner. A number of designs, including monohull, SWATH and catamaran are under consideration. With an expected endurance of six days, they would be controlled from the upgraded 'Alkmaar' class minehunters which would also programme the target signature simulation system. The requirement to survive explosions so triggered pose a considerable design challenge. Due to budge constraints, procurement has been delayed to meet an earliest in-service date of 2010. In the meantime, the upgraded 'Alkmaar' class will be capable of controlling the German 'Seehund' drones. ***UPDATED***



DRONE (Monohull design) *6/2002, Royal Netherlands Navy* / 0523345

10 ALKMAAR (TRIPARTITE) CLASS (MINEHUNTERS) (MHC)

Name	*No*	*Laid down*	*Launched*	*Commissioned*
HAARLEM	M 853	16 June 1981	6 May 1983	12 Jan 1984
MAASSLUIS	M 856	7 Nov 1982	5 May 1984	12 Dec 1984
MAKKUM	M 857	25 Feb 1983	27 Sep 1984	13 May 1985
MIDDELBURG	M 858	11 July 1983	23 Feb 1985	10 Dec 1986
HELLEVOETSLUIS	M 859	12 Dec 1983	18 July 1985	20 Feb 1987
SCHIEDAM	M 860	6 May 1984	20 Dec 1985	9 July 1986
URK	M 861	1 Oct 1984	2 May 1986	10 Dec 1986
ZIERIKZEE	M 862	25 Feb 1985	4 Oct 1986	7 May 1987
VLAARDINGEN	M 863	6 May 1986	4 Aug 1988	15 Mar 1989
WILLEMSTAD	M 864	3 Oct 1986	27 Jan 1989	20 Sep 1989

Displacement, tons: 562 standard; 595 full load
Dimensions, feet (metres): 168.9 × 29.2 × 8.5 *(51.5 × 8.9 × 2.6)*
Main machinery: 1 Stork Wärtsilä A-RUB 215X-12 diesel; 1,860 hp(m) *(1.35 MW)* sustained; 1 shaft; LIPS cp prop; 2 active rudders; 2 motors; 240 hp(m) *(179 kW)*; 2 bow thrusters
Speed, knots: 15 diesel; 7 electric. **Range, miles:** 3,000 at 12 kt
Complement: 29-42 depending on task

Guns: 1 Giat 20 mm (an additional short-range missile system may be added for patrol duties).
Countermeasures: MCM: 2 PAP 104 remote-controlled submersibles. OD 3 mechanical minesweeping gear.
Combat data systems: Signaal Sewaco IX. SATCOM.
Radars: Navigation: Racal Decca TM 1229C or Consilium Selesmar MM 950; I-band.
Sonars: Thomson Sintra DUBM 21A; hull-mounted; minehunting; 100 kHz (± 10 kHz).

Programmes: The two Indonesian ships ordered in 1985 took the place of M 863 and 864 whose laying down was delayed as a result. This class is the Netherlands' part of a tripartite co-operative plan with Belgium and France for GRP hulled minehunters. The whole class built by van der Giessen-de Noord. Ships were launched virtually ready for trials.
Modernisation: An extensive modernisation programme is underway between mid-2003 and 2009 to extend service life to 2020. Upgrades include a MCM command and control system, an Integrated Mine Countermeasures System (comprising hull-mounted and self-propelled variable-depth sonar (installed in Double Eagle Mk III Mod 1 RoV)) and a Mine-Identification and Disposal System (MIDS) based on the STN Atlas Seafox. The equipment is to be first installed in M 859 2002-2004 which will be followed by a 12 month operational evaluation. A number of platform improvements are also planned.
Structure: A 5 ton container can be shipped, stored for varying tasks-research; patrol; extended diving; drone control.
Operational: Endurance, 15 days. Automatic radar navigation system. Automatic data processing and display. EVEC 20. Decca Hi-fix positioning system. Alcatel dynamic positioning system.M 850-852 decommissioned in 2000.
Sales: Two of a modified design to Indonesia, completed March 1988. ***UPDATED***

URK *4/2003*, Frank Findler* / 0569217

MAASSLUIS *4/2003*, Per Körnefeldt* / 0569216

AMPHIBIOUS FORCES

6 LCVP Mk III (LCVP)

L 9536-9541

Displacement, tons: 30 full load
Dimensions, feet (metres): 55.4 × 15.7 × 3.6 *(16.9 × 4.8 × 1.1)*
Main machinery: 2 diesels; 750 hp(m) *(551 kW)*; 2 shafts
Speed, knots: 14 (full load); 16.5 (light). **Range, miles:** 200 at 12 kt
Complement: 3
Military lift: 34 troops or 7 tons or 2 Land Rovers or 1 Snowcat
Guns: 1—7.62 mm MG.
Radars: Navigation: Racal Decca 110; I-band.

Comment: Ordered from van der Giessen-de Noord 10 December 1988. First one laid down 10 August 1989, commissioned 16 October 1990. Last one commissioned 19 October 1992. ***VERIFIED***

L 9536 *7/2001, van Ginderen Collection* / 0114750

1 + 1 ROTTERDAM CLASS (LPD)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ROTTERDAM	L 800	Royal Schelde, Vlissingen	25 Jan 1996	22 Feb 1997	18 Apr 1998
JOHAN DE WITT	L 801	Royal Schelde, Vlissingen	2005	2006	2007

Displacement, tons: 12,750 full load (L 800); 16,680 full load (L 801)
Dimensions, feet (metres): 544.6 × 82 × 19.3 *(166 × 25 × 5.9)* (L 800)
577.5 × 95.8 × 19.3 *(176.0 × 29.2 × 5.9)*
Flight deck, feet (metres): 183.7 × 82 *(56 × 25)*
Main machinery: Diesel-electric; 4 Stork Wärtsilä 12SW28 diesel generators; 14.6 MW sustained; 2 Holec motors; 16,320 hp(m) *(12 MW)*; 2 shafts (2 podded propulsors L 801); bow thruster; 252 hp(m) *(185 kW)*
Speed, knots: 19. **Range, miles:** 6,000 at 12 kt
Complement: 113 (13 officers) + 611 (41 officers) Marines (L 800). 146 (17 officers) + 547 Marines or 402 CJTF (L 801)
Military lift: 611 troops; 170 APCs or 33 MBTs. 6 LCVP Mk 3 or 4 LCU Mk 9 or 4 LCM 8

Guns: 2 Signaal Goalkeeper 30 mm ❶. 8—12.7 mm MGs.
Countermeasures: Decoys: 4 SRBOC chaff launchers ❷; Nixie torpedo decoy system.
ESM/ECM: Intercept and jammer.
Combat data systems: SATCOM ❸; Link 11. JMCIS.
Weapons control: Signaal IRSCAN infra-red director.
Radars: Air/surface search: Signaal DA08 ❹; E/F-band.
Surface search: Signaal Scout/Kelvin Hughes ARPA ❺; I-band.
Navigation and CCA: 2 sets; I-band.

Helicopters: 6 NH90 ❻ or 4 Merlin/Sea King.

Programmes: Project definition for a joint design with Spain completed in December 1993. Contract for L 800 signed with Royal Schelde 25 April 1994. Contract for L 801 signed with Royal Schelde 3 May 2002. The hull is to be constructed in Romania. To be fitted with command and control facilities for an afloat CJTF-HQ.
Structure: Facilities to transport a fully equipped Marine battalion with docking facilities for landing craft and a two spot helicopter flight deck with hangar space for six NH 90. 25 ton crane for disembarkation. Full hospital facilities. Built to commercial standards with military command and control and NBCD facilities. Can carry up to 30 torpedoes and 300 sonobuoys. LPD 2 is based on the L 800 design but is larger and wider. The flight deck is also stronger.
Operational: Alternative employment as an SAR ship for environmental and disaster relief tasks.

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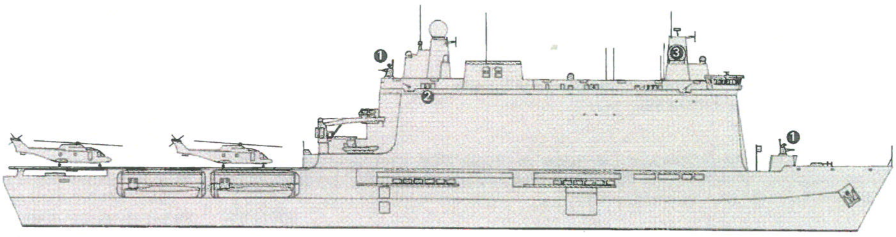
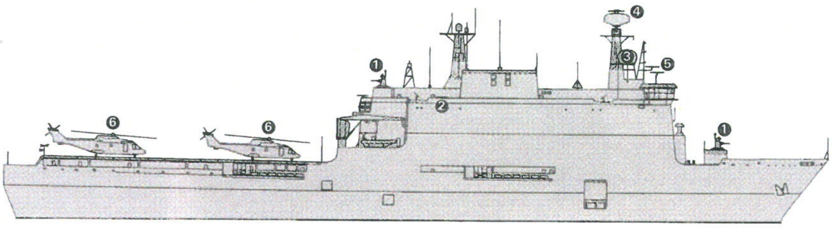
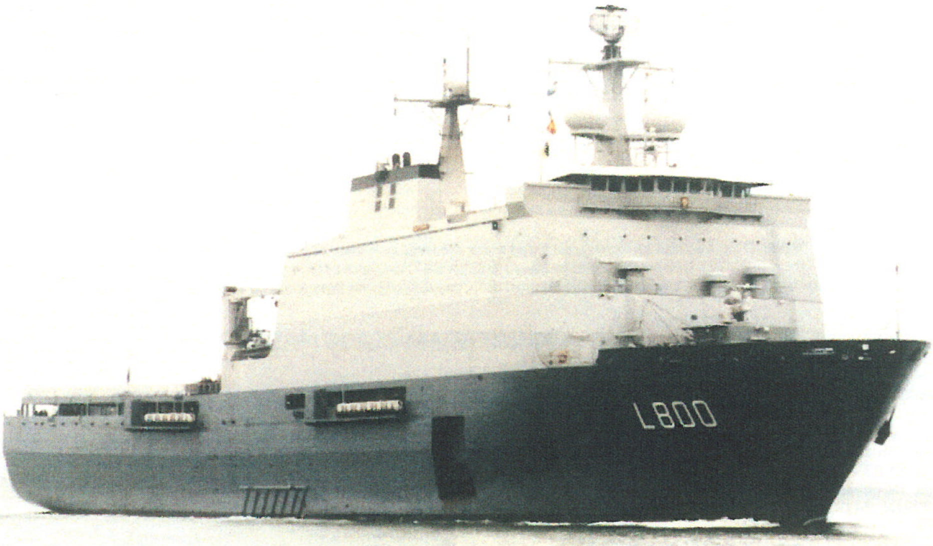
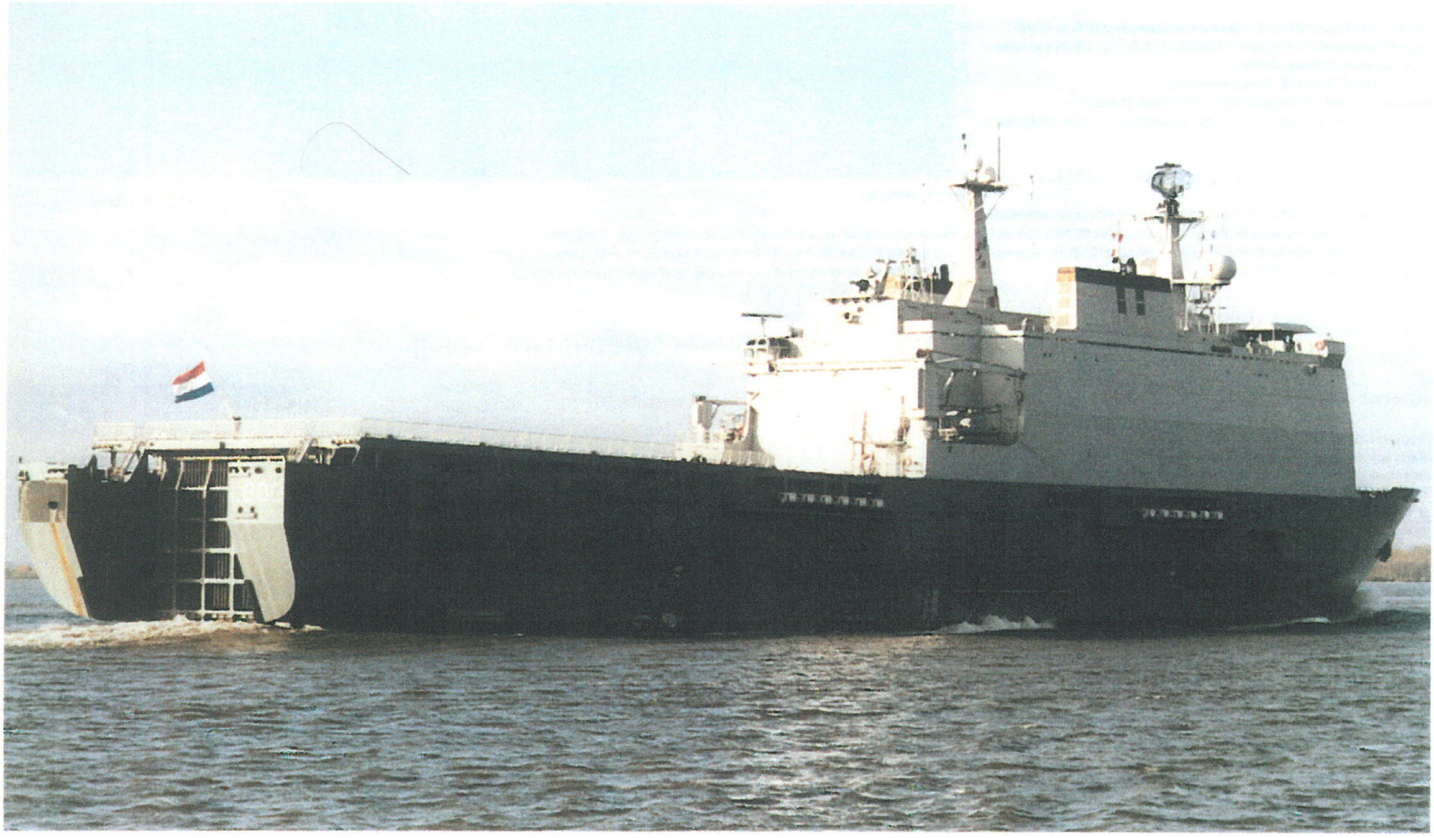


JOHAN DE WITT *(Scale 1 : 1,500), Ian Sturton* / 0534121



ROTTERDAM *(Scale 1 : 1,500), Ian Sturton* / 0534086


ROTTERDAM
11/2002, W Sartori / 0534096


ROTTERDAM *2/2002, Michael Nitz* / 0534095

5 LCU Mk IX (LCU)

L 9525-9529

Displacement, tons: 200 full load
Dimensions, feet (metres): 89.6 × 21.8 × 5.2 *(27.3 × 6.7 × 1.6)*
Main machinery: Diesel-electric; 2 Caterpillar 3412C diesel generators; 1,496 hp(m) *(1.1 MW)*; 2 Alconza D400 motors; 2 Schottel pumpjets; 2 pump jets
Speed, knots: 9. **Range, miles:** 400 at 8 kt
Complement: 5 plus 2 spare
Military lift: 130 troops or 2 Warriors or 1 BARV or up to 3 trucks
Guns: 1—12.7 mm MG; 1—7.62 mm MG.
Radars: Navigation: I-band.

Comment: Ordered from Visser Dockyard, Den Helder on 19 July 1996. Steel vessels of which the first commissioned 7 April 1998. The others have been fabricated in Romania and fitted out by Visser in 1999/2000. Embarked in *Rotterdam*.

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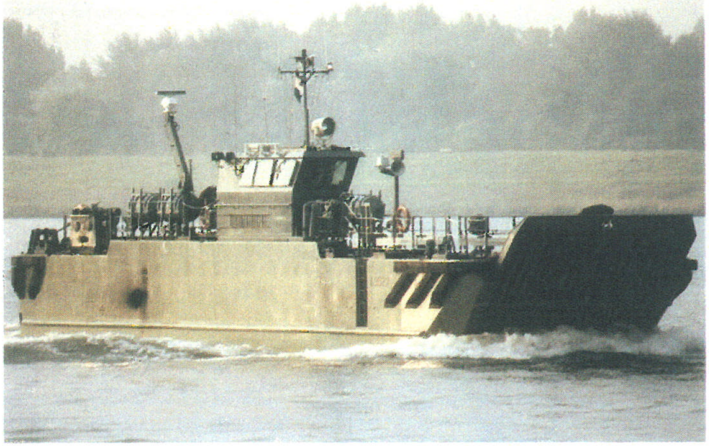


L 9527 *9/2002, A A de Kruijf* / 0534093

SURVEY SHIPS

Notes: There are also four survey boats 8901-8904 completed in 1989-90. Two are carried by A 906.

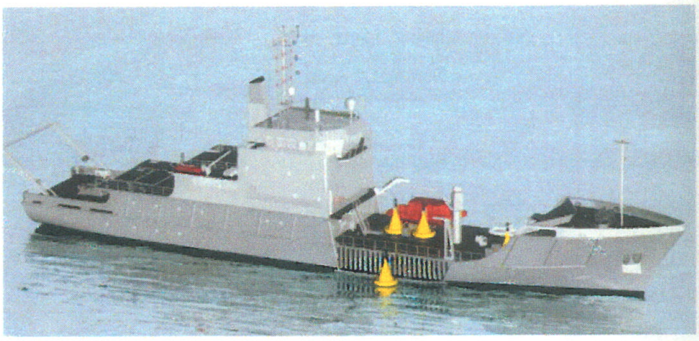
0 + 2 SURVEY SHIPS (AGSH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SNELLIUS	A 802	Royal Schelde, Vlissingen	2003	11 Dec 2003
LUYMES	A 803	Royal Schelde, Vlissingen	2003	1 Apr 2004

Displacement, tons: 1,875 full load
Dimensions, feet (metres): 246.1 × 43.0 × 13.1 *(75 × 13.1 × 4)*
Main machinery: Diesel electric; 3 diesel generators; 2,652 hp(m) *(1.95 MW)*; 1 motor; 1,360 hp(m) *(1 MW)*; 1 shaft; cp prop
Speed, knots: 12. **Range, miles:** 4,300 at 12 kt
Complement: 13 plus 5 scientists plus 24 spare
Radars: Navigation: E/F- and I-band.
Sonars: Multi and single beam; high frequency; active.

Comment: Designed for military and civil hydrographic surveys. Both laid down on 25 June 2002.

UPDATED



SURVEY SHIP (artist's impression) *2001, Royal Netherlands Navy* / 0114759

AUXILIARIES

Notes: (1) In addition to the vessels listed there are large numbers of non self-propelled craft with Y pennant numbers, and six harbour launches Y 8200-8205.
(2) An Accommodation Ship *Thetis* (A 887) is based at Den Helder and provides harbour training for divers and underwater swimmers.
(3) Studies to define a multipurpose logistic support ship, capable of both fleet replenishment and strategic sealift, are to be completed in 2005. The ship is to replace *Zuiderkruis*.

1 AMSTERDAM CLASS (FAST COMBAT SUPPORT SHIP) (AORH)

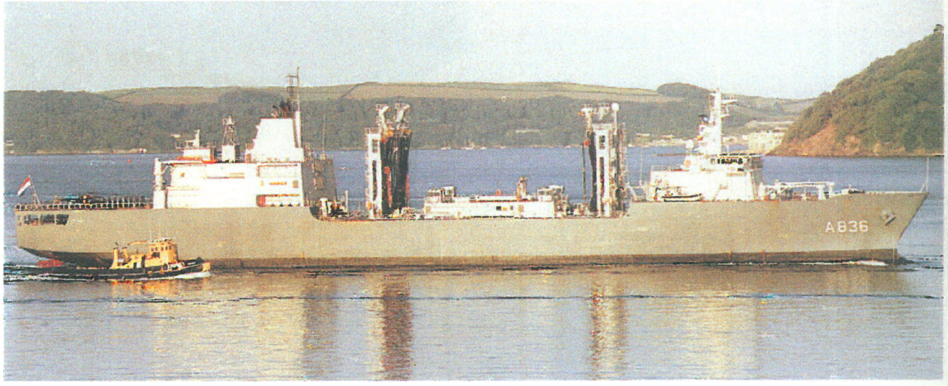
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
AMSTERDAM	A 836	Merwede, Hardinxveld, and Royal Schelde, Vlissingen	25 May 1992	11 Sep 1993	2 Sep 1995

Displacement, tons: 17,040 full load
Dimensions, feet (metres): 544.6 × 72.2 × 26.2 *(166 × 22 × 8)*
Main machinery: 2 Bazán/Burmeister & Wain 16V 40/45 diesels; 24,000 hp(m) *(17.6 MW)* sustained; 1 shaft; LIPS cp prop
Speed, knots: 20. **Range, miles:** 13,440 at 20 kt
Complement: 160 (23 officers) including 24 aircrew plus 20 spare
Cargo capacity: 6,815 tons dieso; 1,660 tons aviation fuel; 290 tons solids

Guns: 2 Oerlikon 20 mm. 1 Signaal Goalkeeper 30 mm CIWS.
Countermeasures: Decoys: 4 SRBOC Mk 36 chaff launchers. Nixie towed torpedo decoy.
ESM: Ferranti AWARE-4; radar warning.
Weapons control: Signaal IRSCAN infrared director.
Radars: Surface search and helo control: 2 Kelvin Hughes; F-band.

Helicopters: 3 Lynx or 3 SH-3D or 3 NH90 or 2 EH 101.

Programmes: NP/SP AOR 90 replacement for *Poolster* ordered 14 October 1991. Hull built by Merwede, with fitting out by Royal Schelde from October 1993. A similar ship has been built for the Spanish Navy.



AMSTERDAM *6/2001, John Brodie* / 0114752

Structure: Close co-operation between Dutch Nevesbu and Spanish Bazán led to this design which has maintenance workshops as well as four abeam and one stern RAS/FAS station, and one Vertrep supply station. Built to merchant ship standards but with military NBC damage control.

UPDATED

1 POOLSTER CLASS (FAST COMBAT SUPPORT SHIP) (AORH)

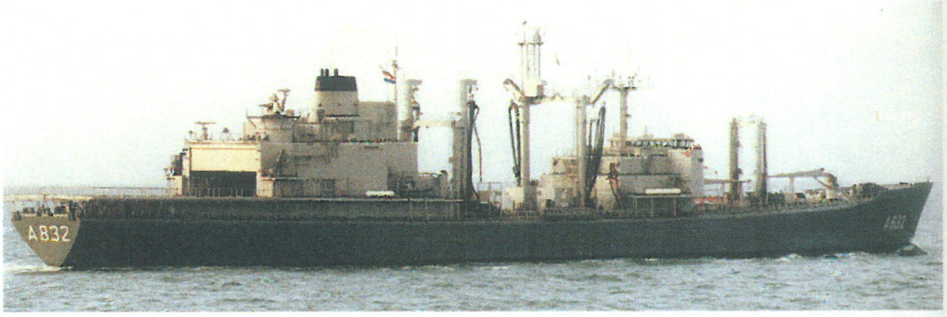
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ZUIDERKRUIS	A 832	Verolme Shipyards, Alblasserdam	16 July 1973	15 Oct 1974	27 June 1975

Displacement, tons: 16,900 full load
Measurement, tons: 10,000 dwt
Dimensions, feet (metres): 556 × 66.6 × 27.6 *(169.6 × 20.3 × 8.4)*
Main machinery: 2 Stork-Werkspoor TM410 diesels; 21,000 hp(m) *(15.4 MW)*; 1 shaft; LIPS cp props
Speed, knots: 21
Complement: 266 (17 officers)
Cargo capacity: 10,300 tons including 8-9,000 tons oil fuel

Guns: 1 Signaal Goalkeeper 30 mm CIWS. 5 Oerlikon 20 mm.
Countermeasures: Decoys: 2 Loral Hycor SRBOC Mk 36 fixed 6-barrelled launchers; IR flares and chaff.
ESM: Ferranti AWARE-4; radar warning.
Weapons control: Signaal IRSCAN.
Radars: Air/surface search: Racal Decca 2459; F/I-band.
Navigation: 2 Racal Decca TM 1226C; Signaal SCOUT; I-band.

Helicopters: 1 Westland UH-14A Lynx.

Structure: Helicopter deck aft. Funnel heightened by 4.5 m *(14.8 ft)*. 20 mm guns, containerised Goalkeeper CIWS and SATCOM, fitted for operational deployments.



ZUIDERKRUIS *11/2000, M Verschaeve* / 0105154

Operational: Capacity for five helicopters with A/S weapons. Two fuelling stations each side for underway replenishment. Planned to remain in commission until replaced by a multipurpose logistic support ship in about 2010.

Sales: *Poolster* sold to Pakistan in June 1994.

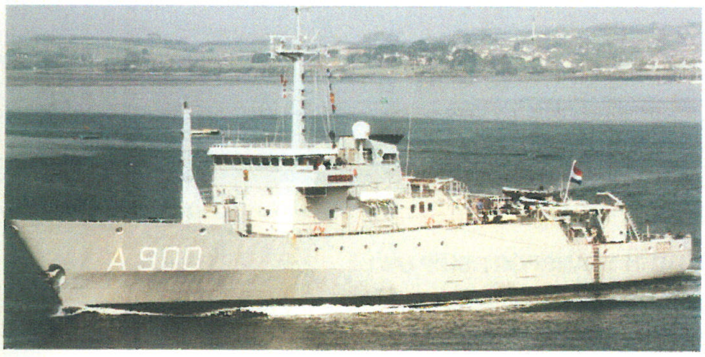
UPDATED

1 SUBMARINE SUPPORT SHIP and TORPEDO TENDER (ASL/YTT)

Name	*No*	*Builders*	*Commissioned*
MERCUUR	A 900	Koninklijke Maatschappij de Schelde	21 Aug 1987

Displacement, tons: 1,400 full load
Dimensions, feet (metres): 212.6 × 39.4 × 14.1 *(64.8 × 12 × 4.3)*
Main machinery: 2 Brons 61-20/27 diesels; 1,100 hp(m) *(808 kW)*; 2 shafts; bow thruster
Speed, knots: 14
Complement: 39 (6 officers)
Torpedoes: 3—324 mm (triple) tubes. 1—21 in *(533 mm)* underwater tube.
Mines: Can lay mines.
Radars: Navigation: Racal Decca 1229; I-band.
Sonars: SQR-01; hull-mounted; passive search.

Comment: Replacement for previous ship of same name. Ordered 13 June 1984. Laid down 6 November 1985. Floated out 25 October 1986. Can launch training and research torpedoes above and below the waterline. Services, maintains and recovers torpedoes.
VERIFIED



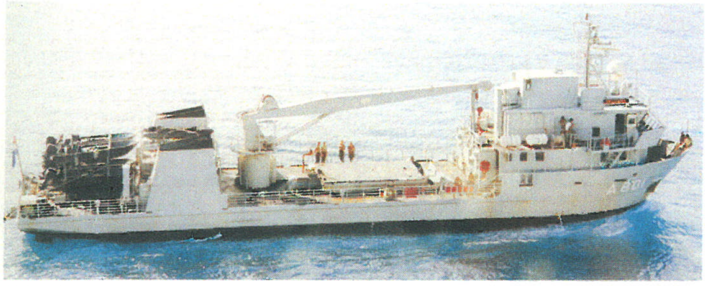
MERCUUR *5/2002, John Brodie* / 0534094

1 SUPPORT SHIP (AP)

Name	*No*	*Builders*	*Commissioned*
PELIKAAN (ex-*Kilindoni*)	A 801	Vinholmen, Arendal	1984

Displacement, tons: 505 full load
Dimensions, feet (metres): 151.6 × 34.8 × 9.2 *(46.2 × 10.6 × 2.8)*
Main machinery: 2 Caterpillar 3412T diesels; 1,080 hp *(806 kW)* sustained; 2 shafts
Speed, knots: 10
Complement: 15 plus 40 troops
Guns: 2—12.7 mm MGs.
Radars: Navigation: Racal Decca; I-band.

Comment: Ex-oil platform supply ship acquired 28 May 1990 after being refitted in Curaçao. Serves as tender and transport for marines in the Antilles. Capacity for 40 marines in five accommodation units. Replacement is under consideration.
VERIFIED



PELIKAAN *5/2001* / 0114761

1 TANKER (AOTL)

Name	*No*	*Builders*	*Commissioned*
PATRIA	Y 8760	De Hoop, Schiedam	9 June 1998

Displacement, tons: 681 full load
Dimensions, feet (metres): 145.3 × 22.4 × 8.9 *(44.4 × 6.9 × 2.8)*
Main machinery: 1 Volvo Penta TADM 122A; 381 hp(m) *(280 kW)*; 1 shaft
Speed, knots: 9.5
Complement: 2
Radars: Navigation: Furuno RHRS-2002R; I-band.
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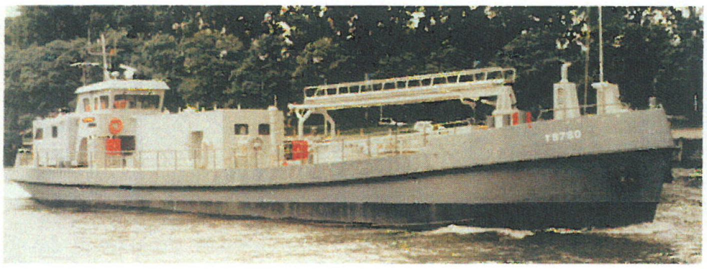

PATRIA *6/1998, De Hoop* / 0081307

1 SUPPORT SHIP (YFL)

Name	*No*	*Builders*	*Commissioned*
NIEUWEDIEP	Y 8005	Akerboom, Leiden	Feb 1972

Displacement, tons: 27 full load
Dimensions, feet (metres): 58.4 × 14.1 × 4.9 *(17.8 × 4.3 × 1.5)*
Main machinery: 2 Volvo Penta diesels; 600 hp(m) *(441 kW)*; 2 shafts
Speed, knots: 10
Complement: 4

Comment: Acquired by the Navy in February 1992 as a passenger craft.
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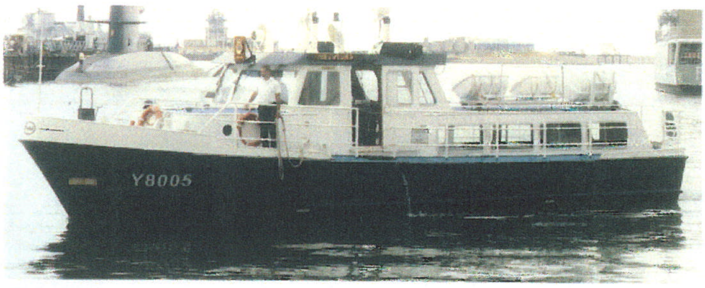

NIEUWEDIEP *6/2001, van Ginderen Collection* / 0126322

4 CERBERUS CLASS (DIVING TENDERS) (YDT)

Name	*No*	*Builders*	*Commissioned*
CERBERUS	A 851	Visser, Den Helder	28 Feb 1992
ARGUS	A 852	Visser, Den Helder	2 June 1992
NAUTILUS	A 853	Visser, Den Helder	18 Sep 1992
HYDRA	A 854	Visser, Den Helder	20 Nov 1992

Displacement, tons: 223 full load
Dimensions, feet (metres): 89.9 × 27.9 × 4.9 *(27.4 × 8.5 × 1.5)*
Main machinery: 2 Volvo Penta TAMD122A diesels; 760 hp(m) *(560 kW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 750 at 12 kt
Complement: 8 (2 officers)
Radars: Navigation: Racal Decca; I-band.

Comment: Ordered 29 November 1990. Capable of maintaining 10 kt in Sea State 3. Can handle a 2 ton load at 4 m from the ship's side. *Hydra* lengthened by 10.5 m to provide more accommodation and recommissioned on 13 March 1998.
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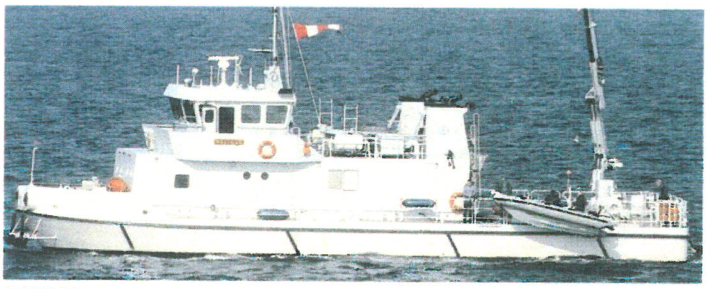

NAUTILUS *9/2002, A A de Kruijf* / 0534091

TRAINING SHIPS

Notes: Two 'Dokkum' class minesweepers are used by Sea Cadets.

1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Commissioned*
URANIA (ex-*Tromp*)	Y 8050	Haarlem	23 Apr 1938

Displacement, tons: 76 full load
Dimensions, feet (metres): 78.4 × 17.4 × 10.5 *(23.9 × 5.3 × 3.2)*
Main machinery: 1 diesel; 65 hp(m) *(48 kW)*; 1 shaft
Speed, knots: 5 diesel; 10 sail
Complement: 17

Comment: Schooner used for training in seamanship.
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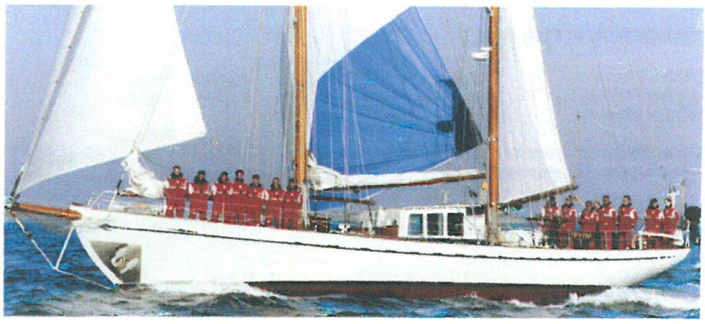

URANIA *2000, RNLN* / 0105158

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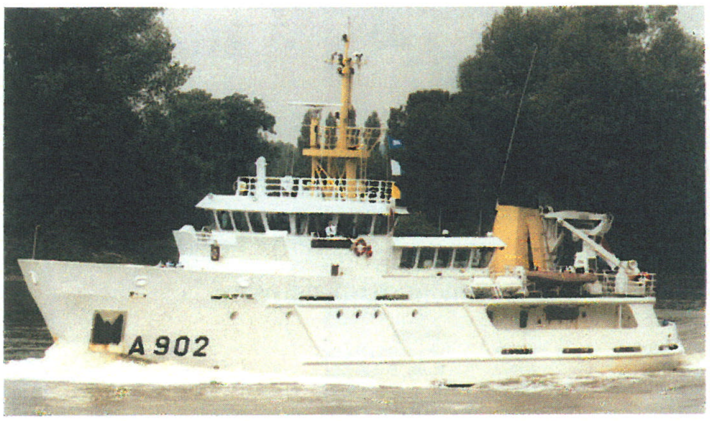
1 TRAINING SHIP (AXL)

Name	*No*	*Builders*	*Commissioned*
VAN KINSBERGEN	A 902	Damen Shipyards	2 Nov 1999

Displacement, tons: 630 full load
Dimensions, feet (metres): 136.2 × 30.2 × 10.8 *(41.5 × 9.2 × 3.3)*
Main machinery: 2 Caterpillar 3508 BI-TA; 1,572 hp(m) *(1.16 MW)* sustained; 2 shafts; bow thruster; 272 hp(m) *(200 kW)*
Speed, knots: 13
Complement: 5 plus 3 instructors and 16 students
Radars: Navigation: Consilium Selesmar; I-band.

Comment: Launched 30 August 1999. Has replaced *Zeefakkel* as the local training ship at Den Helder. Carries a 25 kt RIB. ***UPDATED***



VAN KINSBERGEN *6/2003*, Schaeffer/Marsan* / 0569215

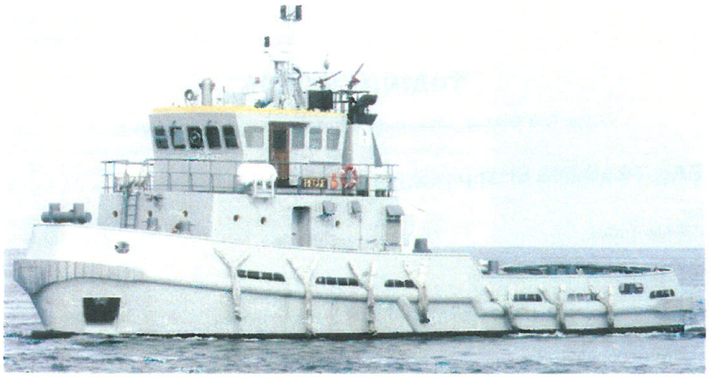
TUGS

5 COASTAL TUGS (YTM)

Name	*No*	*Builders*	*Commissioned*
LINGE	A 874	Delta SY, Sliedrecht	20 Feb 1987
REGGE	A 875	Delta SY, Sliedrecht	6 May 1987
HUNZE	A 876	Delta SY, Sliedrecht	20 Oct 1987
ROTTE	A 877	Delta SY, Sliedrecht	20 Oct 1987
GOUWE	A 878	Delta SY, Sliedrecht	21 Feb 1997

Displacement, tons: 380 full load
Dimensions, feet (metres): 90.2 × 27.2 × 8.9 *(27.5 × 8.3 × 2.7)*
Main machinery: 2 Stork-Werkspoor or 2 Caterpillar (A 878) diesels; 1,600 hp(m) *(1.18 MW)*; 2 Kort nozzle props
Speed, knots: 11
Complement: 7
Radars: Racal Decca; I-band.

Comment: Order for first four placed in 1986. Based at Den Helder. A fifth of class was ordered in June 1996 to replace *Westgat*. ***VERIFIED***

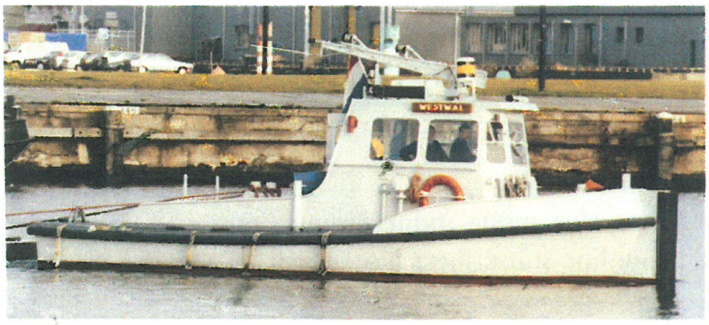


REGGE *9/2002, A A de Kruijf* / 0534044

7 HARBOUR TUGS (YTL)

BREEZAND Y 8018
BALGZAND Y 8019
SCHELDE Y 8055
WIERBALG Y 8056
MALZWIN Y 8057
ZUIDWAL Y 8058
WESTWAL Y 8059

Comment: *Breezand* completed December 1989, *Balgzand* January 1990. The others are smaller pusher tugs and were completed December 1986 to February 1987. All built by Delta Shipyard. ***UPDATED***



WESTWAL *11/2002*, A A de Kruijf* / 0569214

ARMY

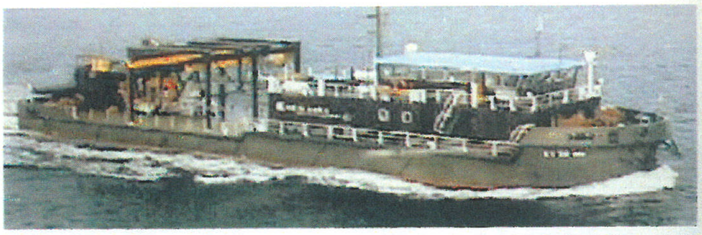
Notes: Seven craft are operated by the Corps of Military Police: RV 165-166, RV 168-169, RV 175-177.

1 DIVING VESSEL (YDT)

RV 50

Dimensions, feet (metres): 137.3 × 31.2 × 4.9 *(41.8 × 9.5 × 1.5)*
Main machinery: 2 diesels; 476 hp(m) *(350 kW)*; 2 shafts; 1 bow thruster
Speed, knots: 8
Complement: 21
Radars: Navigation: JRC JMA 606; I-band.

Comment: Built by Vervako as a diving training ship and commissioned 3 November 1989. There is a moonpool aft with a 50 m diving bell, and a decompression chamber. ***UPDATED***



RV 50 *6/2003*, Royal Netherlands Navy* / 0569207

1 TANK TRANSPORT SHIP (AK)

JAN DE BOER RV 40

Dimensions, feet (metres): 176.8 × 31.2 × 7.2 *(53.8 × 9.5 × 2.2)*
Main machinery: 2 Mercedes OM424 diesels; 660 hp *(560 kW)*; 2 shafts
Speed, knots: 9.4
Complement: 4

Comment: Built by Grave BV and completed on 22 November 1979. ***NEW ENTRY***

COAST GUARD (KUSTWACHT)

Notes: (1) On 26 February 1987, many of the maritime services were merged to form a Coast Guard with its own distinctive colours. Included are assorted craft of the Ministries of Transport and Public Works, Finance, Defence, Justice and Agriculture, Nature Management and Food Quality. Also involved is the Ministry of Home Affairs. From 1 June 1995 the operational command of the Coast Guard has been exercised by the Navy.
(2) The following are the principal ships and craft:

Transport and Public Works: *Arca, Frans Naerebout, Nieuwe Diep, Rotterdam, Schuitengat, Terschelling, Vliestroom, Waddenzee, Waker*

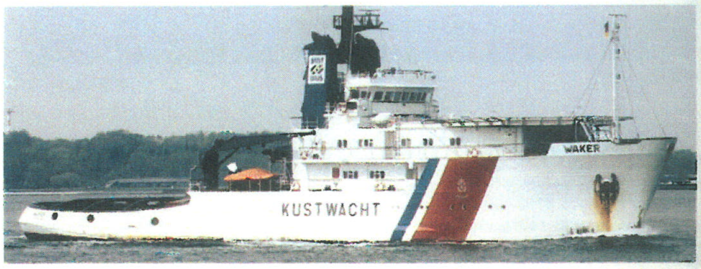
Finance: *Visarend, Zeearend*

Defence: minehunters of the 'Alkmaar' class

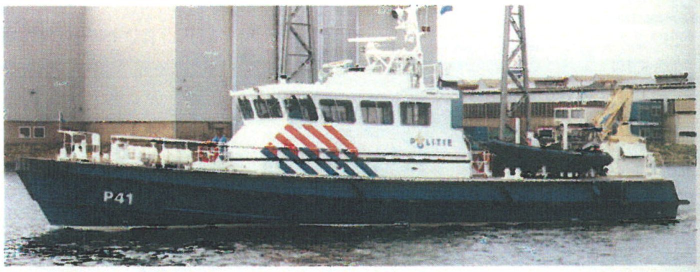
Justice: *P 41, P 42, P 44, P 48, P 96*

Agriculture, Nature Management and Food Quality: *Barend Biesheuvel*

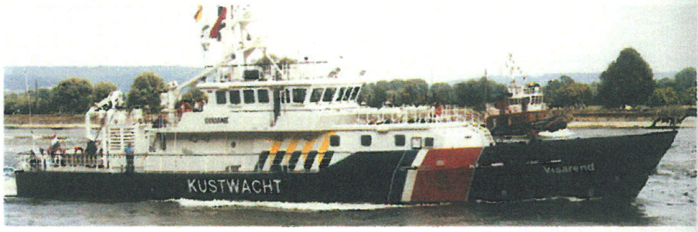
(3) In addition, the Coast Guard can call upon 60 lifeboats in 39 stations from the Royal Netherlands Sea-Rescue Organisation.



WAKER (Transport) *4/2003*, Per Körnefeldt* / 0569212



P 41 (Justice) *4/2003*, Bram Plokker* / 0569213



VISAREND (Finance) *7/2003*, P Marsan* / 0569210

COAST GUARD (ANTILLES AND ARUBA)

Notes: (1) Netherlands Antilles and Aruba Coast Guard (NAACG) formed 23 January 1996. Headquarters is co-located with the RNLN at Parera, Curaçao.
(2) Two Lockheed Orion P3s are available for maritime air patrols.

3 POLICE CRAFT (PB)

P 1 P 4 P 5

Displacement, tons: 35 full load
Dimensions, feet (metres): 57.4 × 15.7 × 5.6 *(17.5 × 4.8 × 1.7)*
Main machinery: 2 MTU 12V 183 TC91 diesels; 1,190 hp(m) *(875 kW)*; 2 shafts
Speed, knots: 18
Complement: 6

Comment: Built by Schottel in the 1970s. In addition there are six 40 kt RIBs which entered Police service in November 1997.

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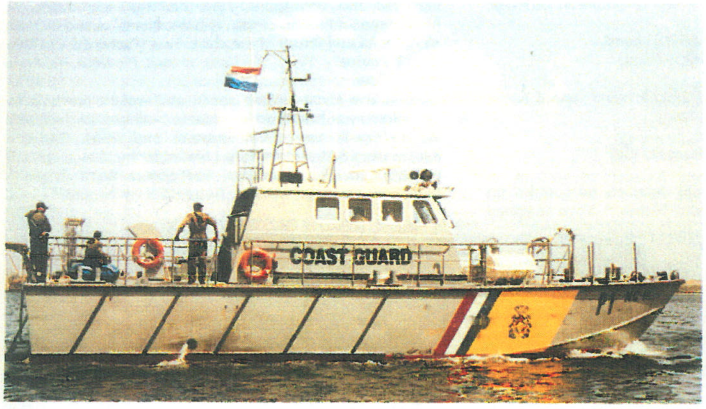

P 1 *6/2003*, Royal Netherlands Navy /* 0569211

3 STAN PATROL 4100 CUTTERS (PB)

Name	*No*	*Builders*	*Commissioned*
JAGUAR	P 810	Damen Shipyards	2 Nov 1998
PANTER	P 811	Damen Shipyards	18 Jan 1999
POEMA	P 812	Damen Shipyards	19 Mar 1999

Displacement, tons: 205 full load
Dimensions, feet (metres): 140.4 × 22.3 × 8.2 *(42.8 × 6.8 × 2.5)*
Main machinery: 2 Caterpillar 3516B diesels; 5,685 hp(m) *(4.18 MW)*; 2 shafts; LIPS cp props; bow thruster
Speed, knots: 26. **Range, miles:** 2,000 at 12 kt
Complement: 11 plus 6 police
Guns: 1—12.7 mm MG.
Radars: Surface search: Signaal Scout; I-band.
Navigation: Kelvin Hughes; I-band.

Comment: Ordered from Damen shipyards in March 1997 for delivery in late 1998. Equipped with surveillance passive sensors. The cutters have a gas citadel. A 30 kt RIB is launched through a transom door. Based at Willemstad, Curaçao.

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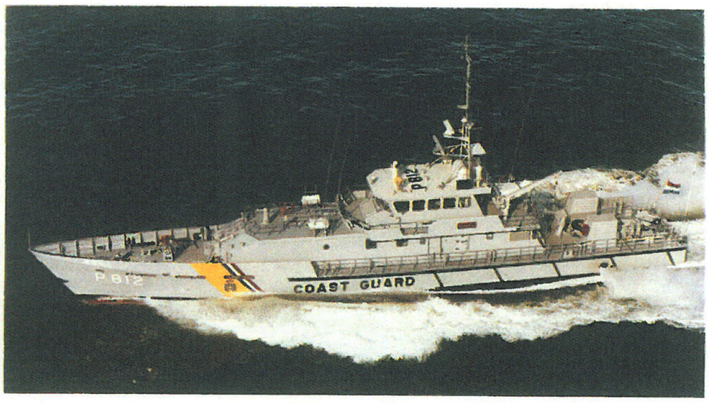


POEMA *3/1999, Damen/Flying Focus /* 0081315

New Zealand

Country Overview

New Zealand is an independent island country situated in the south Pacific Ocean with which it has a 8,170 n mile coastline. The British monarch, represented by a governor-general, is head of state. Situated about 865 n miles south-east of Australia, it comprises two main islands, North and South islands, which are separated by the Cook Strait. In addition there are numerous smaller islands including Stewart Island and the Auckland Islands. The overall area is 104,454 square miles. Overseas territories include Ross Dependency (Antarctica) and Tokelau (north of Samoa). In addition, the Cook Islands and Niue are self-governing territories in free association. The capital is Wellington and largest city is Auckland; both are ports located on North Island. Other principal ports are Tauranga, Lyttelton (near Christchurch), and Port Chalmers (Dunedin). Territorial seas (12 n miles) are claimed. An EEZ (200 n mile) is also claimed.

Headquarters Appointments

Chief of Navy:
Rear Admiral P M McHaffie, OBE
Deputy Chief of Navy:
Commodore D V Anson
Commander Joint Forces:
Major General M J Dunne, CNZM
Maritime Component Commander:
Commodore D I Ledson, ONZM

Diplomatic Representation

Defence Adviser, London:
Commodore A J Peck
Naval Adviser, London:
Commander S M Rennie
Naval Adviser, Canberra:
Commander K N Corles
Naval Adviser, Washington:
Commander A H Keating

Personnel

2004: 1,900 regulars and 400 reserves

Bases

Headquarters Joint Forces New Zealand (established 1 July 2001)
Naval Staff: HMNZS Wakefield (Wellington)
Fleet Support: HMNZS Philomel (Auckland)
Training: RNZN College Tamaki (Auckland)
Ship Repair: HMNZ Dockyard (Auckland)

RNZNVR Divisions

Auckland: HMNZS *Ngapona*
Wellington: HMNZS *Olphert*
Christchurch: HMNZS *Pegasus*
Dunedin: HMNZS *Toroa*

Prefix to Ships' Names

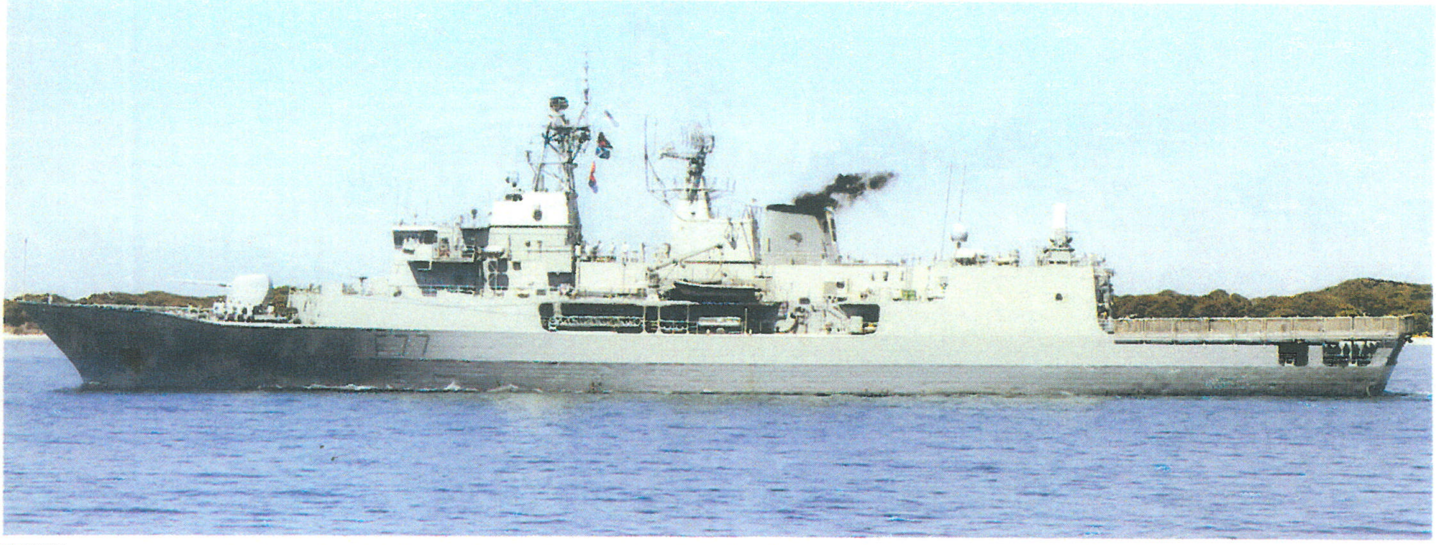
HMNZS

DELETIONS

Auxiliaries

2001 *Charles Upham*

FRIGATES

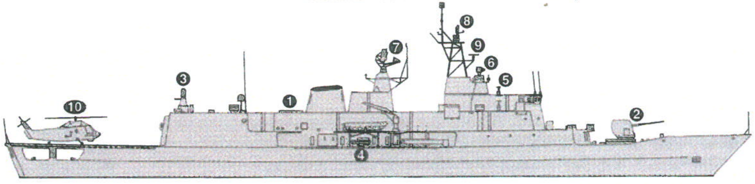


TE KAHA *12/2002*, Gavin Hainsworth, RAN /* 0576321

2 ANZAC (MEKO 200) CLASS (FFHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
TE KAHA	F 77	Transfield Defence Systems, Williamstown	19 Sep 1994	22 July 1995	22 July 1997
TE MANA	F 111	Tenix Defence Systems, Williamstown	28 June 1996	10 May 1997	10 Dec 1999

Displacement, tons: 3,600 full load
Dimensions, feet (metres): 387.1 oa; 357.6 wl × 48.6 × 14.3 *(118; 109 × 14.8 × 4.4)*
Main machinery: CODOG; 1 GE LM 2500 gas turbine; 30,172 hp *(22.5 MW)* sustained; 2 MTU 12V 1163 TB83 diesels; 8,840 hp(m) *(6.5 MW)* sustained; 2 shafts; cp props
Speed, knots: 27. **Range, miles:** 6,000 at 18 kt
Complement: 163



TE KAHA *(Scale 1 : 1,200), Ian Sturton* / 0081317

Missiles: SAM: Raytheon Sea Sparrow RIM-7P; Lockheed Martin Marietta Mk 41 Mod 5 octuple cell vertical launcher ❶; semi-active radar homing to 14.6 km *(8 n miles)* at 0.9 Mach; warhead 39 kg. ESSM in due course.
Guns: 1 FMC 5 in *(127 mm)*/54 Mk 45 Mod 2 ❷; 20 rds/min to 23 km *(12.6 n miles)*; weight of shell 32 kg.
1 GE/GD 20 mm Vulcan Phalanx 6 barrelled Mk 15 Block 1 Baseline 2B ❸; 4,500 rds/min combined to 1.5 km.
Torpedoes: 6—324 mm US Mk 32 Mod 5 (2 triple) tubes ❹; Mk 46 Mod 2; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor Mk 36 Mod 1 chaff launchers ❺. SLQ-25A torpedo decoy system.
ESM: DASA Maigret; Racal Thorn Sceptre A; intercept (to be replaced by Racal Centaur in 2005).
Combat data systems: CelsiusTech 9LV 453 Mk 3. Link 11; GCCS-M.
Weapons control: CelsiusTech 9LV 453 optronic director ❻. Raytheon CWI Mk 73 Mod 1 (for SAM).
Radars: Air search: Raytheon SPS-49(V)8 ❼; C/D-band.
Air/surface search: CelsiusTech 9LV 453 TIR (Ericsson Tx/Rx) ❽; G-band.
Navigation: Atlas Elektronik 9600 ARPA; I-band.
Fire control: CelsiusTech 9LV 453 ❾; G-band.
IFF: Cossor Mk XII.
Sonars: Thomson Sintra Spherion B Mod 5; hull-mounted; active search and attack; medium frequency.

Helicopters: 1 SH-2G (NZ) Super Seasprite ❿.

Programmes: Contract signed with Amecon consortium on 19 November 1989 to build eight Blohm + Voss designed MEKO 200 ANZ frigates for Australia and two for New Zealand. Options on a third of class were turned down in November 1998. Modules constructed at Newcastle, Australia and Whangarei, New Zealand, and shipped to Melbourne for final assembly. The two New Zealand ships are the second and fourth of the class. First steel cut on *Te Kaha* on 11 February 1993. *Te Kaha* means Prowess. *Te Mana* means Power.
Structure: The ships include space and weight provision for considerable enhancement including canister-launched SSM, an additional fire-control channel and ECM. Signature suppression features are incorporated in the design. All-steel construction. Fin stabilisers. McTaggert Scott Trigon 3 helicopter traversing system. Two RHIBs are carried.

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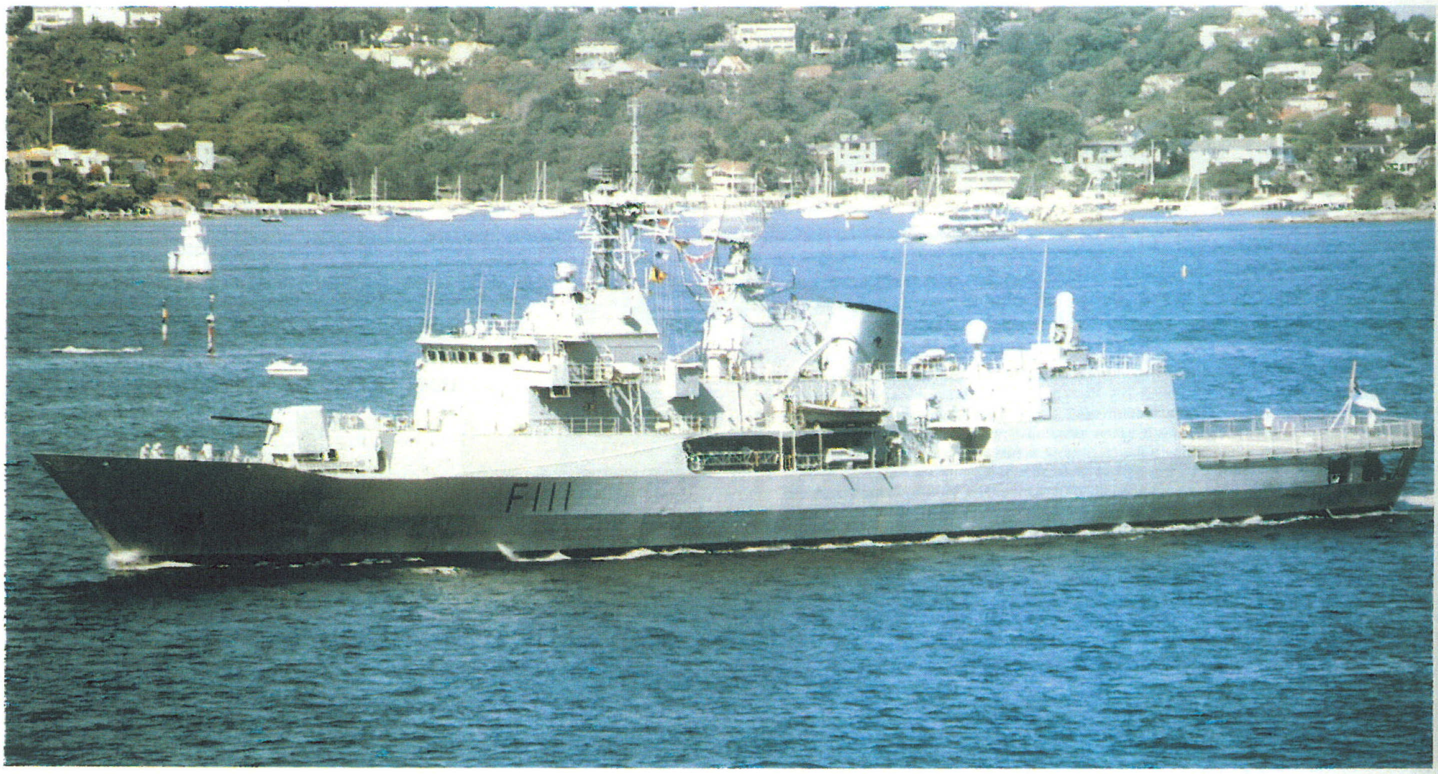
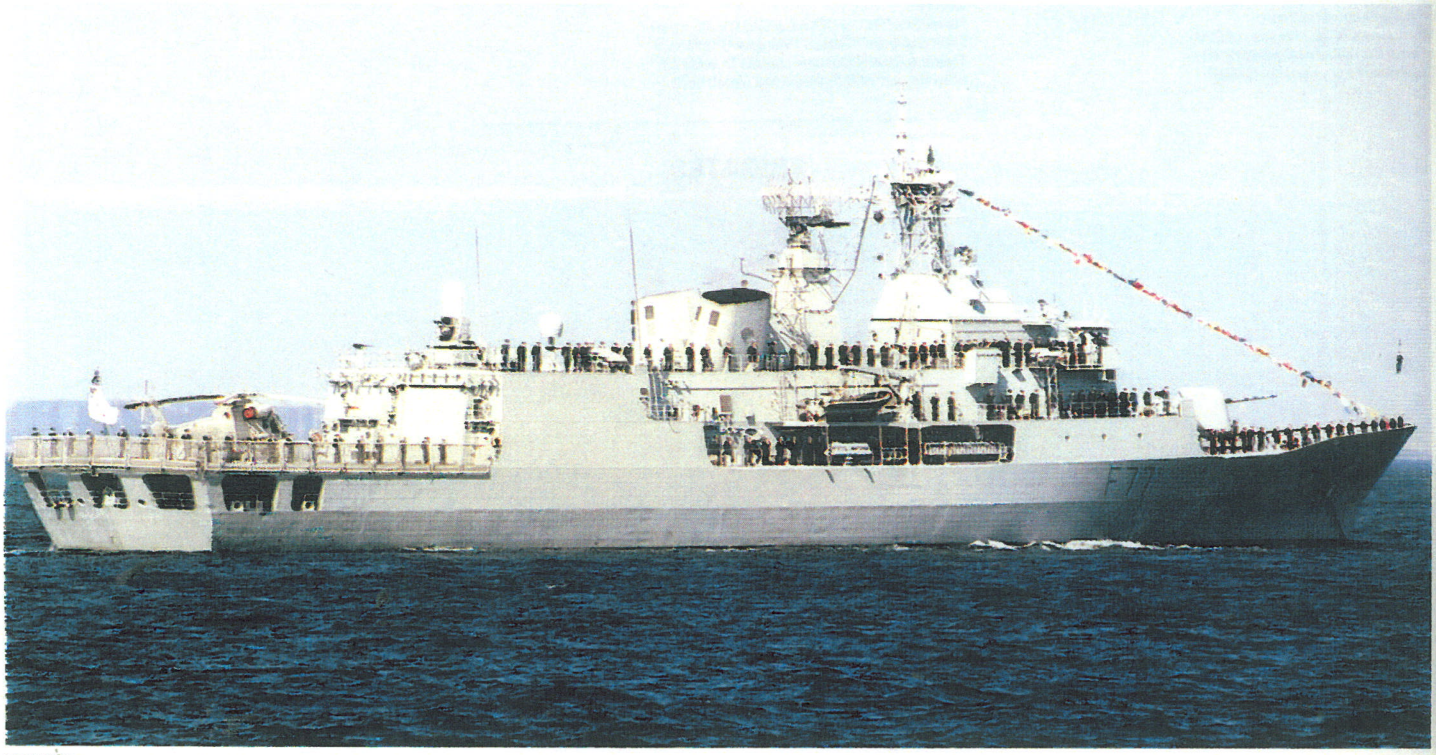


TE MANA *3/2002*, Chris Sattler* / 0567462



TE KAHA *10/2002*, Mick Prendergast* / 0567463

1 LEANDER (BROAD-BEAMED) CLASS (FFH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
CANTERBURY	F 421	Yarrow Ltd, Clyde	12 Apr 1969	6 May 1970	22 Oct 1971

Displacement, tons: 2,474 standard; 2,945 full load
Dimensions, feet (metres): 372 × 43 × 18 *(113.4 × 13.1 × 5.5)*
Main machinery: 2 Babcock & Wilcox boilers; 550 psi *(38.7 kg/cm²)*; 850°F *(454°C)*; 2 White-English Electric turbines; 30,000 hp *(22.4 MW)*; 2 shafts
Speed, knots: 28. **Range, miles:** 5,500 at 15 kt
Complement: 245 (15 officers)

Guns: 2 Vickers 4.5 in *(114 mm)*/45 Mk 6 (twin) ❶; 20 rds/min to 19 km *(10.3 n miles)* anti-surface; 6 km *(3.2 n miles)* anti-aircraft; weight of shell 25 kg.
4 or 6—12.7 mm MGs.
Torpedoes: 6—324 mm US Mk 32 Mod 5 (2 triple) tubes ❷. Raytheon Mk 46 Mod 2; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor Mk 36 Mod 1 6-barrelled trainable launchers.
ESM/ECM: Argo Phoenix; intercept and jammer. Telegon PST 1288 HVU.
Combat data systems: Plessey/Marconi Nautis F; Link 11.
Weapons control: RCA R-76C5 GFCS.
Radars: Air search: Signaal LW08 ❸; D-band; range 265 km *(145 n miles)* for 2 m² target.
Air/surface search: Plessey Type 994 ❹; E/F-band.
Navigation: Kelvin Hughes Type 1006; I-band.
Fire control: RCA TR 76 ❺; I-band.
IFF: Cossor Mk XII.
Sonars: Graseby Type 750; hull-mounted; active search and attack; medium frequency.

Helicopters: 1 SH-2G Seasprite.

Programmes: Ordered in August 1968, arrived in New Zealand in August 1972.
Modernisation: Since 1984 new equipment includes LW08 radar, Telegon HF-DF, Phoenix ESM, a modern gunnery fire-control system, G750 hull-mounted sonar, Mk 32 torpedo tubes, Nautis-F system, computer-aided message handling, Mk 36 chaff launchers and replacement ships' boats. Upgrades started in November 1993 include a Whittaker Track Management system, IFF Mk 12, Link 11 and replacement of the HF communications system. Seacat removed in 1993-94; replaced by Phalanx in 1995-96 (since removed). Hangar enlarged for Seasprite in 1998.
Structure: Referred to as a 'broad-beamed' Leander.
Operational: *Canterbury* is scheduled to remain operational and compatible to the Anzacs until 2005.

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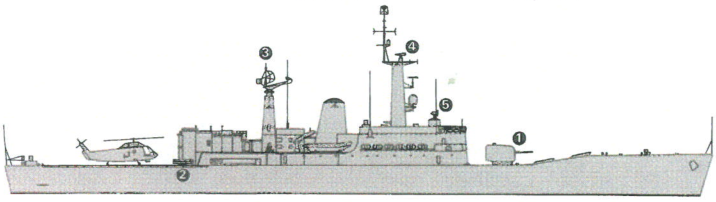


CANTERBURY *(Scale 1 : 1,200), Ian Sturton* / 0533893

CANTERBURY *3/2003*, Chris Sattler* / 0567464

SHIPBORNE AIRCRAFT

Numbers/Type: 5 Kaman SH-2G (NZ) Super Seasprite.
Operational speed: 130 kt *(241 km/h)*.
Service ceiling: 22,500 ft *(6,860 m)*.
Range: 367 n miles *(679 km)*.
Role/Weapon systems: Last of five delivered in February 2003. Sensors: Litton ASN 150 C2; Telephonics APS 143 radar; AAQ 32 Safire IRDS; ALR 100 ESM; ALE 47 ECM. Weapons: ASW; 2 Mk 46 torpedoes or Mk 11 depth bomb; ASV; 2 Hughes Maverick AGM 65D (NZ); 1—7.62 mm M60 MG.

UPDATED

SUPER SEASPRITE *5/2003*, A Sharma* / 0567466

LAND-BASED MARITIME AIRCRAFT

Numbers/Type: 6 Lockheed P-3K Orion.
Operational speed: 410 kt *(760 km/h)*.
Service ceiling: 28,300 ft *(8,625 m)*.
Range: 4,000 n miles *(7,410 km)*.
Role/Weapon systems: Purchased in 1966. Long-range surveillance and reconnaissance patrol; updated 1984. Modernisation of airframes (Project Kestrel) undertaken 1995-2001 for 20 year extension. Project Guardian will upgrade avionics and tactical systems. Requests for Tender issued in mid-2003. Operated by RNZAF. Sensors: APS-134 radar, ASQ-10 MAD, AQH5 interim processor, 3 AYK 14 computers, IFF, ESM, SSQ 53/62 sonobuoys. Weapons: ASW; eight Mk 46 torpedoes, Mk 11 depth bombs and 10 underwing stations for weapons.

UPDATED

P-3K *2002, RNZAF* / 0525917

PATROL FORCES

Note: Project 'Protector' is a NZ$500 million programme to procure a Multi-Role Vessel (MRV), up to three Offshore Patrol Vessels (OPV) and Inshore Patrol Vessels (IPV). Based on the requirements identified by the Maritime Forces Review (2001), the MRV is to be capable of tactical sealift and low-level contingency response, sea training and offshore patrol (including the Southern Ocean and Ross Sea during summer months). The OPVs are for patrol of the New Zealand EEZ and south-west Pacific and are to be aviation capable. The IPV are for operations within the New Zealand coastal zone (0-24 n miles). Requests for Proposals were released to six companies on 26 May 2003 and Tenix was selected as preferred supplier on 5 April 2004.

4 MOA CLASS (INSHORE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
MOA	P 3553	Whangarei Engineering and Construction Co Ltd	28 Nov 1983
KIWI	P 3554	Whangarei Engineering and Construction Co Ltd	2 Sep 1984
WAKAKURA	P 3555	Whangarei Engineering and Construction Co Ltd	26 Mar 1985
HINAU	P 3556	Whangarei Engineering and Construction Co Ltd	4 Oct 1985

Displacement, tons: 91.5 standard; 105 full load
Dimensions, feet (metres): 88 × 20 × 7.2 *(26.8 × 6.1 × 2.2)*
Main machinery: 2 Cummins KT-1105M diesels; 710 hp *(530 kW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 1,000 at 11 kt
Complement: 18 (5 officers (4 training))
Guns: 1 Browning 12.7 mm MG.
Radars: Surface search: Racal Decca Bridgemaster 2000; I-band.
Sonars: Klein 595 Tracpoint; side scan; active high frequency.

Comment: On 11 February 1982 the New Zealand Cabinet approved the construction of four inshore patrol craft. The four IPC are operated by the Reserve Divisions, *Moa* with *Toroa* (Dunedin), *Kiwi* with *Pegasus* (Lyttelton), *Wakakura* with *Olphert* (Wellington), *Hinau* with *Ngapona* (Auckland). Same design as Inshore Survey and Training craft *Kahu* but with a modified internal layout. MCM system fitted in 1993-94. Side scan sonar and MCAIS data system fitted to *Hinau* in 1993; the remainder in 1996. In wake of the Maritime Forces Review, a further upgrade is likely.

VERIFIED

HINAU *2002, RNZN* / 0525918

AUXILIARIES

Note: In addition to vessels listed below there are three 12 m sail training craft used for seamanship training: *Paea II, Mako II, Manga II* (sail nos 6911-6913).

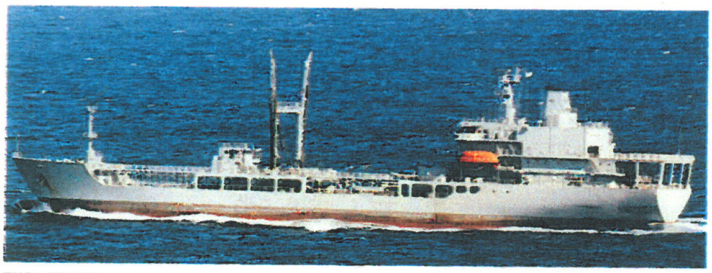
PAEA *2002, RNZN* / 0525919

1 REPLENISHMENT TANKER (AORH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ENDEAVOUR	A 11	Hyundai, South Korea	14 Aug 1987	6 Apr 1988

Displacement, tons: 12,390 full load
Dimensions, feet (metres): 453.1 × 60 × 23 *(138.1 × 18.4 × 7.3)*
Main machinery: 1 MAN-Burmeister & Wain 12V32/36 diesel; 5,780 hp(m) *(4.25 MW)* sustained; 1 shaft; LIPS cp prop
Speed, knots: 13.5. **Range, miles:** 8,000 at 13.5 kt
Complement: 49 (10 officers)
Cargo capacity: 7,500 tons dieso; 100 tons Avcat; 20 containers
Radars: Navigation: Racal Decca 1290A/9; ARPA 1690S; I-band.
Helicopters: Platform only.

Comment: Ordered July 1986. Laid down 10 April 1987. Completion delayed by engine problems but arrived in New Zealand in May 1988. Two abeam RAS rigs (one QRC, one Probe) and one astern refuelling rig. Fitted with Inmarsat. Standard merchant design modified on building to provide a relatively inexpensive replenishment tanker. ***UPDATED***



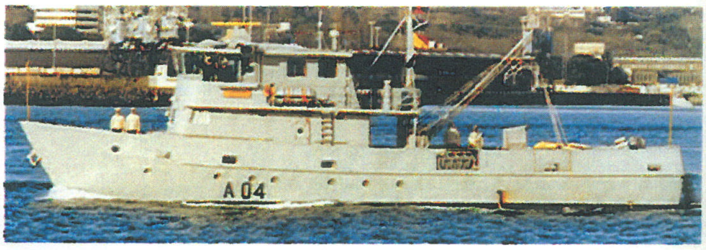
ENDEAVOUR *9/2002*, Bob Fildes* / 0567465

1 MOA CLASS (TRAINING SHIP) (AXL)

Name	*No*	*Builders*	*Commissioned*
KAHU (ex-*Manawanui*)	A 04 (ex-A 09)	Whangarei Engineering and Construction Co Ltd	28 May 1979

Displacement, tons: 91.5 standard; 105 full load
Dimensions, feet (metres): 88 × 20 × 7.2 *(26.8 × 6.1 × 2.2)*
Main machinery: 2 Cummins KT-1150M diesels; 710 hp *(530 kW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 1,000 at 11 kt
Complement: 16
Radars: Navigation: Racal Decca Bridgemaster 2000; I-band.

Comment: Same hull design as Inshore Survey Craft and Patrol Craft. Now used for navigation and seamanship training and as a standby diving tender. ***VERIFIED***



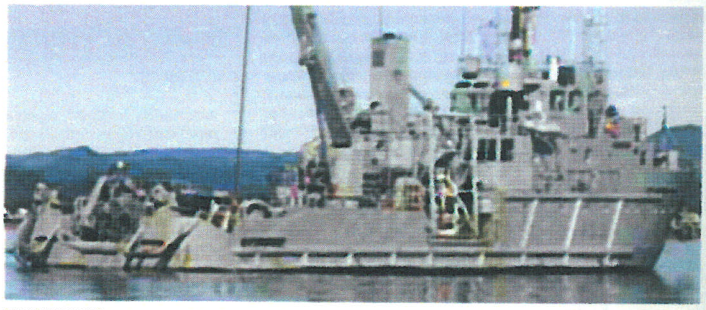
KAHU *6/1999, RNZN* / 0081325

1 DIVING TENDER (YDT)

Name	*No*	*Builders*	*Commissioned*
MANAWANUI (ex-*Star Perseus*)	A 09	Cochrane, Selby	May 1979

Displacement, tons: 911 full load
Dimensions, feet (metres): 143 × 31.2 × 10.5 *(43.6 × 9.5 × 3.2)*
Main machinery: 2 Caterpillar D 379TA diesels; 1,130 hp *(843 kW)*; 2 shafts; cp props; bow thruster
Speed, knots: 10.7. **Range, miles:** 5,000 at 10 kt
Complement: 24 (2 officers)
Radars: Surface search: Racal Decca Bridgemaster 2000; I-band.
Sonars: Klein 595 Tracpoint; side scan; active high frequency.

Comment: North Sea Oil Rig Diving support vessel commissioned into the RNZN on 5 April 1988. Completed conversion in December 1988 and has replaced the previous ship of the same name which proved to be too small for the role. Equipment includes two Phantom HDX remote-controlled submersibles, a decompression chamber (to 250 ft), wet diving bell and 13 ton crane. Fitted with Inmarsat. MCAIS data system, side scan sonar and GPS fitted in 1995. More modifications are planned to enable the ship to do some of the work previously undertaken by *Tui*. This includes a stern gantry and general purpose winches for research including MCM. Used to support RAN submarine trials in 1996/97. ***VERIFIED***



MANAWANUI *2002, RNZN* / 0525920

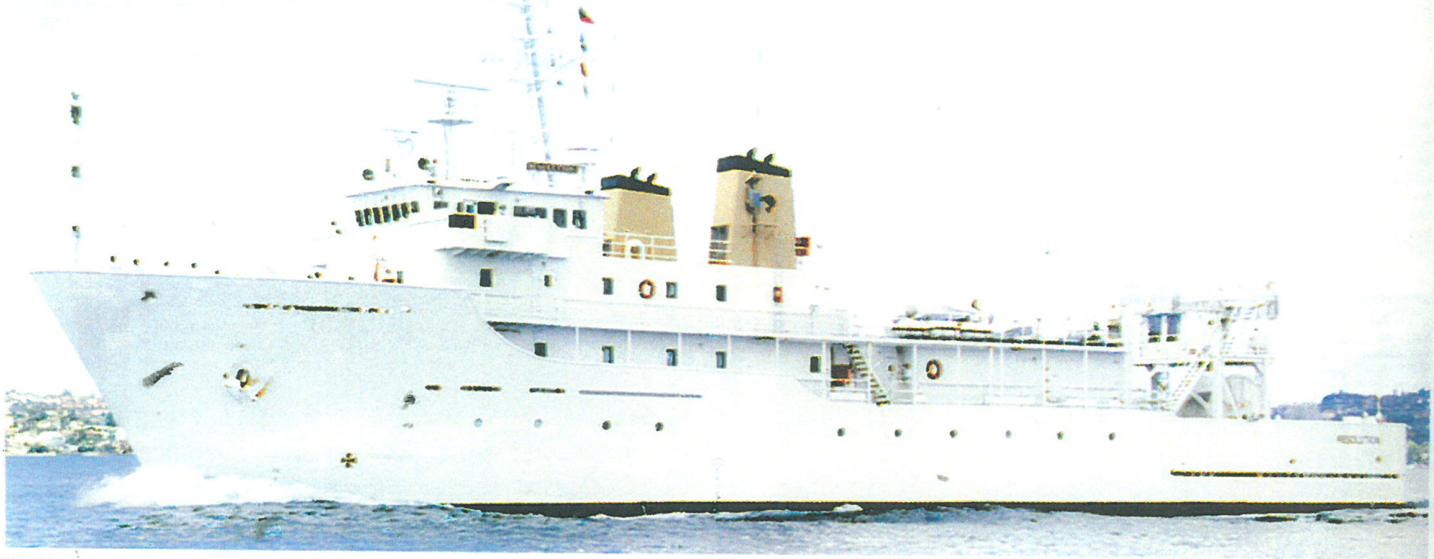
SURVEY AND RESEARCH SHIPS

1 STALWART CLASS (AGS)

Name	*No*	*Builders*	*Commissioned*
RESOLUTION (ex-*Tenacious*)	A 14 (ex-TAGOS 17)	Halter Marine, Moss Point	29 Sep 1989

Displacement, tons: 2,262 full load
Dimensions, feet (metres): 224 × 43 × 18.7 *(68.3 × 13.1 × 5.7)*
Main machinery: Diesel-electric; 4 Caterpillar D 398B diesel generators; 3,200 hp *(2.39 MW)*; 2 motors; 1,600 hp *(1.2 MW)*; 2 shafts; bow thruster; 550 hp *(410 kW)*
Speed, knots: 11. **Range, miles:** 1,500 at 11 kt
Complement: 26 or 45 (when surveying)
Radars: Navigation: 2 Raytheon; I-band.

Comment: Laid up by USN in 1995 and acquired in September 1996. Reactivated in October 1996 and commissioned into RNZN 13 February 1997 for passage to New Zealand. Conversion commenced mid-1997 to suit the ship for hydrography with secondary role of acoustic research for about three months per year, replacing both *Tui* and *Monowai*. Second stage of conversion to fit Atlas Elektronik MD 2/30 multibeam echo-sounder, completed in January 1999. A fixed dome increased the ship's draught. A DGPS and a towed array fitted for acoustic research. A new survey boat with Atlas Elektronik MD20 multibeam echo sounder was embarked in 2001. The ship has been repainted in the standard white/buff configuration for survey ships. ***VERIFIED***



RESOLUTION *10/2001, Chris Sattler* / 0121232

Nicaragua

FUERZA NAVAL-EJERCITO DE NICARAGUA

Country Overview

The Republic of Nicaragua is the largest Central American republic. After many years of civil war, a 1989 peace plan introduced a more stable period of democratic government. With an area of 50,893 square miles, it is situated between Honduras to the north and Costa Rica to the south. It has a 381 n mile coastline with the Caribbean and a 225 n mile coastline with the Pacific Ocean. The capital and largest city is Managua while Corinto, on the Pacific coast, is the principal port. Nicaragua has not claimed an EEZ but is one of a few coastal states which claims a 200 n mile territorial sea.

Headquarters Appointments

Head of Navy:
Captain Juan Santiago Estrada García

Personnel

2004: 750 officers and men

Bases

Pacific: Corito (HQ), San Juan del Sur, Puerto Sandino y Potosi
Atlantic: Bluefields (HQ), El Bluff, Puerto Cabezas, Corn Island, San Juan del Norte

PATROL FORCES

Notes: A programme to re-engine and return to service one 'Zhuk' (Grif) class has been initiated.

3 DABUR CLASS (PB)

GC 201 **GC 203** **GC 205**

Displacement, tons: 39 full load
Dimensions, feet (metres): 64.9 × 18 × 5.8 *(19.8 × 5.5 × 1.8)*
Main machinery: 2 GM 12V-71TS; 840 hp *(626 kW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 450 at 13 kt
Complement: 8
Guns: 2—23 mm/80 (twin). 2—12.7 mm MGs.
Radars: Surface search: Decca; I-band.

Comment: Two delivered by Israel April 1978 and two more in May 1978. One lost by gunfire in 1985 and three severely damaged in 1988 by a hurricane. The current three were acquired from Israel in May 1996. Two are to be re-engined and one may be non-operational. All are based on the Atlantic coast.

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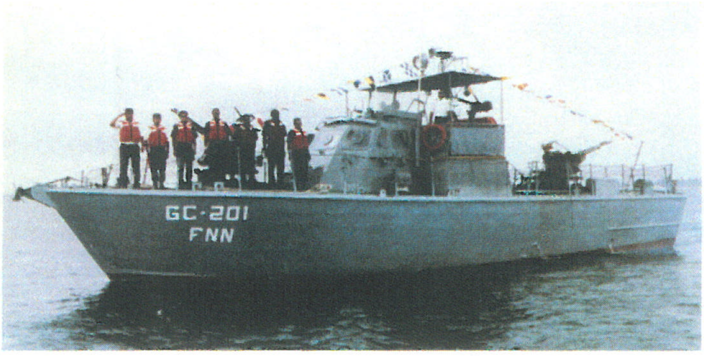

GC 201 *5/2001, Julio Montes* / 0109945

19 ASSAULT and RIVER CRAFT (PBF)

Comment: There are 19 Colombian-built 'Eduardoño' class assault craft and 'Cigarette' craft of about 10 m length and powered by two Yamaha outboards; 400 hp *(298 kW)*.

UPDATED

EDUARDOÑO class *1/2000, Julio Montes* / 0109943

EDUARDOÑO class *1/2000, Julio Montes* / 0109944

EDUARDOÑO CLASS *6/1999, Nicaraguan Navy* / 0081329

PBF *6/1999, Nicaraguan Navy* / 0081330

Nigeria

Country Overview

Formerly a British protectorate, the Federal Republic of Nigeria gained full independence in 1960. With an area of 356,669 square miles, it is situated in western Africa and is bordered to the north by Niger, to the east by Chad and Cameroon and to the west by Benin. It has a 459 n mile coastline with the Gulf of Guinea. Abuja is the capital while Lagos (the capital until 1991) is the largest city, commercial centre and one of its principal ports. There are other ports at Port Harcourt, Warri, Calabar, Bonny, and Burutu. Territorial Seas (12 n miles) are claimed. An EEZ (200 n miles) has been claimed but the limits have not been defined.

The Navy has suffered from chronic lack of investment over the last ten years but there are signs that a refit programme is attempting to restore a core seagoing capability for operations within the Nigerian EEZ. However, the operational status of weapon systems and sensors remains doubtful.

Headquarters Appointments

Chief of the Naval Staff:
Vice Admiral Samuel Afolayan
Flag Officer Western Command:
Rear Admiral Ekpeyong Okpo
Flag Officer Eastern Command:
Rear Admiral Anthonio Ibinabo Bob-Manuel

Personnel

(a) 2004: 5,600 (650 officers) including Coast Guard
(b) Voluntary service

Naval Aviation

The official list includes two Lynx Mk 89, 12 MBB BO 105C, three Fokker F27 and 14 Dornier Do 128-6MPA. These aircraft are believed not to be operational. Two Agusta A 109 were procured from Italy in early 2003 for patrol duties.

Bases

Apapa-Lagos: Western Naval Command; Naval Base Lagos (NNS *Onaku*), Naval College (NNS *Onura*) and Naval Training (NNS *Quorra*).
Calabar: Eastern Naval Command; Naval Base Calabar (NNS *Anansu*), Naval Base Warri (NNS *Umalokun*) and Naval Base Port Harcourt (NNS *Okemini*). Plans for a further base at Bonny Island have not been confirmed.

Prefix to Ships' Names

NNS

Port Security Police

A separate force of 1,600 officers and men in Lagos.

FRIGATES

1 MEKO TYPE 360 (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ARADU (ex-*Republic*)	F 89	Blohm & Voss, Hamburg	1 Dec 1978	25 Jan 1980	20 Feb 1982

Displacement, tons: 3,360 full load
Dimensions, feet (metres): 412 × 49.2 × 19 (screws) (125.6 × 15 × 5.8)
Main machinery: CODOG; 2 RR Olympus TM3B gas turbines; 50,880 hp *(37.9 MW)* sustained; 2 MTU 20V 956 TB92 diesels; 10,420 hp(m) *(7.71 MW)* sustained; 2 shafts; 2 Kamewa cp props
Speed, knots: 30.5. **Range, miles:** 6,500 at 15 kt
Complement: 195 (26 officers)
Missiles: SSM: 8 OTO Melara/Matra Otomat Mk 1 ❶; active radar homing to 80 km *(43.2 n miles)* at 0.9 Mach; warhead 210 kg.
SAM: Selenia Elsag Albatros octuple launcher ❷; 24 Aspide; semi-active radar homing to 13 km *(7 n miles)* at 2.5 Mach; warhead 30 kg.
Guns: 1 OTO Melara 5 in *(127 mm)*/54 ❸; 45 rds/min to 23 km *(12.4 n miles)*; weight of shell 32 kg.
8 Breda Bofors 40 mm/70 (4 twin) ❹; 300 rds/min to 12.5 km *(6.8 n miles)* anti-surface; weight of shell 0.96 kg.
Torpedoes: 6—324 mm Plessey STWS-1B (2 triple) tubes ❺. 18 Whitehead A244S; anti-submarine; active/passive homing to 7 km *(3.8 n miles)* at 33 kt; warhead 34 kg (shaped charge).
Depth charges: 1 rack.
Countermeasures: Decoys: 2 Breda 105 mm SCLAR 20-tubed trainable; chaff to 5 km *(2.7 n miles)*; illuminants to 12 km *(6.6 n miles)*.
ESM: Decca RDL-2; intercept.
ECM: RCM-2; jammer.
Combat data systems: Sewaco-BV action data automation.
Weapons control: M20 series GFCS. Signaal Vesta ASW.
Radars: Air/surface search: Plessey AWS 5 ❻; E/F-band.
Navigation: Racal Decca 1226; I-band.
Fire control: Signaal STIR ❼; I/J/K-band. Signaal WM 25 ❽; I/J-band.
Sonars: Atlas Elektronik EA80; hull-mounted; active search and attack; medium frequency.

Helicopters: 1 Lynx Mk 89 ❾.

Modernisation: Refit started at Wilmot Point, Lagos with Blohm & Voss assistance in 1991 and completed in February 1994.
Operational: Had two groundings and a major collision in 1987 and ran aground again during post refit trials in early 1994. Assessed as beyond economical repair in 1995 but managed to go to sea in early 1996, and again in 1997 when she broke down for several months in Monrovia. Back in Lagos on one engine in 1998 for further repairs. SSM system reported being refitted in 1999. Reported seagoing in 2003 but probably not fully operational.

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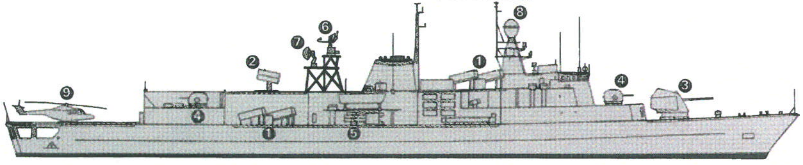

ARADU

(Scale 1 : 1,200), Ian Sturton / 0081331

ARADU

5/1999 / 0081332

CORVETTES

1 Mk 9 VOSPER THORNYCROFT TYPE (FSM)

Name	*No*	*Builders*	*Commissioned*
ENYMIRI	F 84	Vosper Thornycroft	2 May 1980

Displacement, tons: 680 standard; 780 full load
Dimensions, feet (metres): 226 × 31.5 × 9.8 *(69 × 9.6 × 3)*
Main machinery: 4 MTU 20V 956 TB92 diesels; 22,140 hp(m) *(16.27 MW)* sustained; 2 shafts; 2 Kamewa cp props
Speed, knots: 27. **Range, miles:** 2,200 at 14 kt
Complement: 90 (including Flag Officer)

Missiles: SAM: Short Brothers Seacat triple launcher.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 Mod 6 compact; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
1 Breda Bofors 40 mm/70 Type 350; 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
2 Oerlikon 20 mm.
A/S mortars: 1 Bofors 375 mm twin launcher; range 1,600 or 3,600 m.
Countermeasures: ESM: Decca Cutlass; radar warning.
Weapons control: Signaal WM20 series.
Radars: Air/surface search: Plessey AWS 2; E/F-band.
Navigation: Racal Decca TM 1226; I-band.
Fire control: Signaal WM24; I/J-band; range 46 km *(25 n miles)*.
Sonars: Plessey PMS 26; lightweight; hull-mounted; active search and attack; 10 kHz.

Programmes: Ordered from Vosper Thornycroft 22 April 1975.
Operational: *Enymiri* reported operational in 1996 and again in 1998. Sister ship *Erinomi* assessed as beyond economical repair in 1996 and believed not to be operational.

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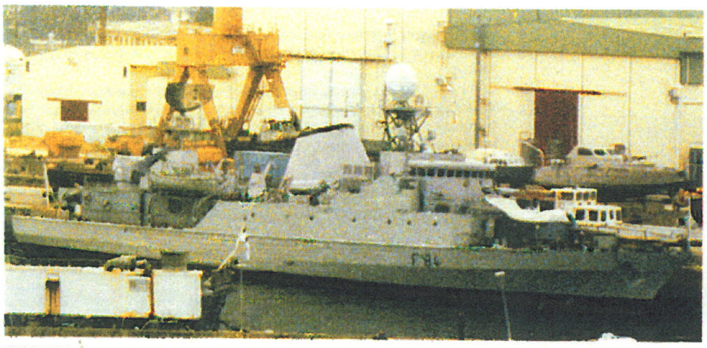


ENYMIRI

5/1999 / 0081333

PATROL FORCES

Notes: (1) All the Coastal Patrol Craft belong to the Coast Guard. Some 38 craft were acquired in the mid-1980s from various shipbuilders including Simonneau, Damen, Swiftships, Intermarine, Watercraft, Van Mill and Rotork. Few of these vessels have been reported at sea in recent years although some are visible, laid up ashore, and are still serviceable.
(2) A Damen 2600 Mk II patrol craft was acquired from South Africa in 2001.

P 240 (Rotork)

5/2002 / 0528301

P 236 (Simonneau)

5/2002 / 0528302

3 EKPE (LÜRSSEN 57) CLASS (LARGE PATROL CRAFT) (PGF)

Name	*No*	*Builders*	*Commissioned*
EKPE	P 178	Lürssen, Vegesack	Aug 1980
DAMISA	P 179	Lürssen, Vegesack	Apr 1981
AGU	P 180	Lürssen, Vegesack	Apr 1981

Displacement, tons: 444 full load
Dimensions, feet (metres): 190.6 × 24.9 × 10.2 *(58.1 × 7.6 × 3.1)*
Main machinery: 4 MTU 16V 956 TB92 diesels; 17,700 hp(m) *(13 MW)* sustained; 2 shafts
Speed, knots: 42. **Range, miles:** 2,000 at 10 kt
Complement: 40

Guns: 1 OTO Melara 3 in *(76 mm)*/62; 60 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg. 2 Breda 40 mm/70 (twin); 4 Emerson Electric 30 mm (2 twin).
Radars: Surface search: Racal Decca TM 1226; I-band.
Fire control: Signaal WM28; I/J-band.

Programmes: Ordered in 1977. Major refit in 1984 at Vegesack.
Operational: P 178 refitted at Lagos in 1995 but broke down en route to Sierra Leone in 1997. P 179 believed to be operational but the operational status of the other two is doubtful.
UPDATED

MAERSK
MAERSK
EKPE *3/1998* / 0052656

4 BALSAM CLASS (PBO)

Name	*No*	*Builders*	*Commissioned*
KYANWA (ex-*Sedge*)	A 501 (ex-WLB 402)	Marine Iron and Shipbuilding Corp, Duluth, Minnesota	5 July 1944
OLOGBO (ex-*Cowslip*)	A 502 (ex-WLB 277)	Marine Iron and Shipbuilding Corp, Duluth, Minnesota	17 Oct 1942
NWAMBA (ex-*Firebush*)	A 503 (ex-WLB 393)	Marine Iron and Shipbuilding Corp, Duluth Minnesota	20 July 1944
OBULA (ex-*Sassafras*)	A 504 (ex-WLB 401)	Marine Iron and Shipbuilding Corp, Duluth Minnesota	23 May 1944

Displacement, tons: 1,034 full load
Dimensions, feet (metres): 180 × 37 × 12 *(54.9 × 11.3 × 3.8)*
Main machinery: Diesel electric; 2 diesels; 1,402 hp *(1.06 MW)*; 1 motor; 1,200 hp *(895 kW)*; 1 shaft; bow thruster
Speed, knots: 13. **Range, miles:** 8,000 at 12 kt
Complement: 53
Guns: 2—12.7 mm MGs.
Radars: Navigation: Raytheon SPS-64(V)1.

Comment: First ship transferred from the US Coast Guard on 30 September 2002, second on 30 December 2002, third on 30 June 2003 and fourth on 30 October 2003. ***UPDATED***

290
U.S. COAST GUARD
BALSAM CLASS (USCG colours) *7/1999, USCG* / 0084209

1 COMBATTANTE IIIB CLASS (FAST ATTACK CRAFT—MISSILE) (PGGF)

Name	*No*	*Builders*	*Commissioned*
AYAM	P 182	CMN, Cherbourg	11 June 1981

Displacement, tons: 385 standard; 430 full load
Dimensions, feet (metres): 184 × 24.9 × 7 *(56.2 × 7.6 × 2.1)*
Main machinery: 4 MTU 16V 956 TB92 diesels; 17,700 hp(m) *(13 MW)* sustained; 2 shafts
Speed, knots: 38. **Range, miles:** 2,000 at 15 kt
Complement: 42

Missiles: SSM: 4 Aerospatiale MM 38 Exocet; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 1 OTO Melara 3 in *(76 mm)*/62; 60 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Breda 40 mm/70 (twin); 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
4 Emerson Electric 30 mm (2 twin); 1,200 rds/min combined to 6 km *(3.3 n miles)*; weight of shell 0.35 kg.
Countermeasures: ESM: Decca RDL; radar intercept.
Weapons control: Thomson-CSF Vega system. 2 CSEE Panda optical directors.
Radars: Air/surface search: Thomson-CSF Triton (TRS 3033); G-band.
Navigation: Racal Decca TM 1226; I-band.
Fire control: Thomson-CSF Castor II (TRS 3203); I/J-band.

Programmes: Ordered in late 1977. Finally handed over in February 1982 after delays caused by financial problems.
Modernisation: Major refit and repairs carried out at Cherbourg from March to December 1991 but the ships were delayed by financial problems.
Operational: *Ayam* believed to be operational but sister ships *Siri* and *Ekun* are almost certainly not.
UPDATED

AYAM (outboard P 179) *5/2002* / 0528300

MINE WARFARE FORCES

2 LERICI CLASS (MINEHUNTERS/SWEEPERS) (MHSC)

Name	*No*	*Builders*	*Commissioned*
OHUE	M 371	Intermarine SY, Italy	28 May 1987
MARABA	M 372	Intermarine SY, Italy	25 Feb 1988

Displacement, tons: 540 full load
Dimensions, feet (metres): 167.3 × 32.5 × 9.2 *(51 × 9.9 × 2.8)*
Main machinery: 2 MTU 12V 396 TB83 diesels; 3,120 hp(m) *(2.3 MW)* sustained; 2 waterjets
Speed, knots: 15.5. **Range, miles:** 2,500 at 12 kt
Complement: 50 (5 officers)
Guns: 2 Emerson Electric 30 mm (twin); 1,200 rds/min combined to 6 km *(3.3 n miles)*; weight of shell 0.35 kg.
2 Oerlikon 20 mm GAM-BO1.
Countermeasures: MCM: Fitted with 2 Pluto remote-controlled submersibles, Oropesa 'O' Mis 4 and Ibis V control system.
Radars: Navigation: Racal Decca 1226; I-band.
Sonars: Thomson Sintra TSM 2022; hull-mounted; mine detection; high frequency.

Comment: *Ohue* ordered in April 1983 and *Maraba* in January 1986. *Ohue* laid down 23 July 1984 and launched 22 November 1985, *Maraba* laid down 11 March 1985, launched 6 June 1986. GRP hulls but, unlike Italian and Malaysian versions they do not have separate hydraulic minehunting propulsion. Carry Galeazzi two-man decompression chambers. Both were refitted in 1999, after operations off Liberia.
VERIFIED

OHUE *7/1987, Marina Fraccaroli*

AMPHIBIOUS FORCES

1 FDR TYPE RO-RO 1300 (LST)

Name	*No*	*Builders*	*Commissioned*
AMBE	LST 1312	Howaldtswerke, Hamburg	11 May 1979

Displacement, tons: 1,470 standard; 1,860 full load
Dimensions, feet (metres): 285.4 × 45.9 × 7.5 *(87 × 14 × 2.3)*
Main machinery: 2 MTU 16V 956 TB92 diesels; 8,850 hp(m) *(6.5 MW)* sustained; 2 shafts
Speed, knots: 17. **Range, miles:** 5,000 at 10 kt
Complement: 56 (6 officers)
Military lift: 460 tons and 220 troops long haul; 540 troops or 1,000 troops seated short haul; can carry 5—40 ton tanks
Guns: 1 Breda 40 mm/70. 2 Oerlikon 20 mm.
Radars: Navigation: Racal Decca 1226; I-band.

Comment: Ordered September 1976. Built to a design prepared for the FGN. Has 19 m bow ramps and a 4 m stern ramp. Reported that bow ramps are welded shut. Second of class beyond repair but *Ambe* reported active in 2003.
UPDATED

AMBE *7/1997* / 0012836

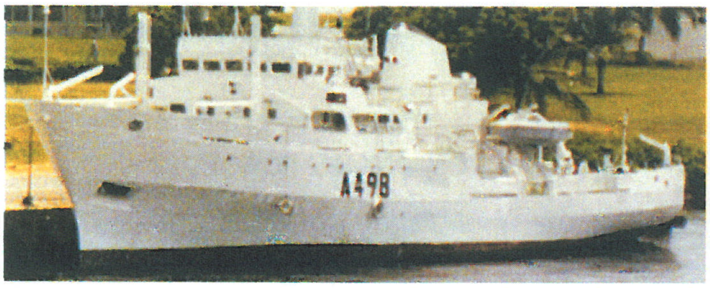
SURVEY SHIPS

1 SURVEY SHIP (AGS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
LANA	A 498	Brooke Marine, Lowestoft	4 Mar 1976	18 July 1976

Displacement, tons: 1,088 full load
Dimensions, feet (metres): 189 × 37.5 × 12 *(57.8 × 11.4 × 3.7)*
Main machinery: 2 Lister Blackstone diesels; 2,640 hp *(1.97 MW)*; 2 shafts
Speed, knots: 16. **Range, miles:** 4,500 at 12 kt
Complement: 52 (12 officers)
Radars: Navigation: Decca; I-band.

Comment: Similar to UK 'Bulldog' class. Ordered in 1973. Not reported active since 1997, but back in reasonable condition in 1999. ***VERIFIED***



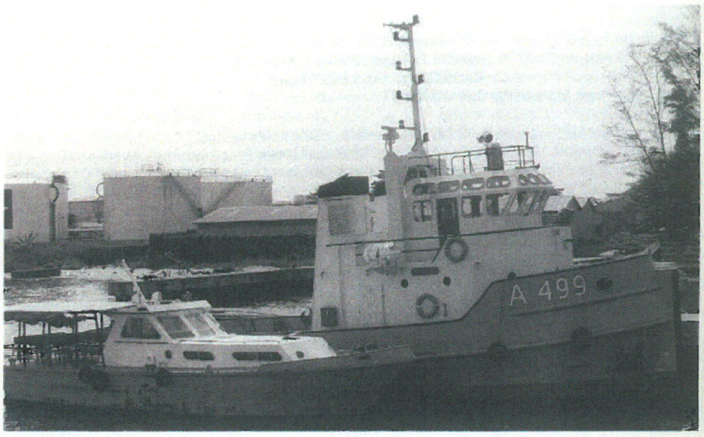
LANA *5/1999* / 0081334

TUGS

3 COASTAL TUGS (YTB/YTL)

COMMANDER APAYI JOE A 499 **DOLPHIN MIRA** **DOLPHIN RIMA**

Comment: A 499 is of 310 tons and was built in 1983. The two Dolphin tugs are under repair. ***VERIFIED***



COMMANDER APAYI JOE *11/1983, Hartmut Ehlers*

Norway

Country Overview

The Kingdom of Norway is a constitutional monarchy occupying the northwest part of the Scandinavian Peninsula. With an area of 125,016 square miles, it is bordered to the east by Sweden and to the northeast by Finland and Russia. The coastline of 11,842 n miles with the Atlantic Ocean (Norwegian Sea), Arctic Ocean (Barents Sea), North Sea and Skagerrak Strait contains numerous fjords and offshore islands. External territories in the Arctic Ocean include the Svalbard archipelago and Jan Mayen Island while the uninhabited Bouvet Island lies in the south Atlantic. Territorial claims in Antarctica include the territory known as Queen Maud Land and Peter I Island. The capital, largest city and principal port is Oslo. Other ports include Bergen, Trondheim and Stavanger. Territorial seas (12 n miles) and an EEZ (200 n miles) are claimed.

Headquarters Appointments

Chief of Naval Staff:
Rear Admiral J E Finseth
Commander Naval Material Command:
Rear Admiral J G Jaeger
Deputy Chief of Naval Staff:
Commodore V Tollefsen
Commander Coast Guard:
Commodore A I Skram
Commander Sea Training:
Commodore T Grytting

Diplomatic Representation

Defence Attaché in Helsinki:
Colonel I L Viddal
Defence Attaché in London:
Captain R N J Haga
Defence Attaché in Moscow:
Brigadier General J Buø
Defence Attaché in Paris:
Colonel A Heiestad
Defence Attaché in Stockholm:
Colonel T Bolstad
Defence Attaché in Washington:
Major General O Bjerke
Defence Attaché in Warsaw:
Colonel O P Pedersen
Defence Attaché in Berlin:
Colonel A Skjaerpe

Diplomatic Representation — *continued*

Defence Attaché in the Hague:
Captain R N P K Brekke
Defence Attaché in the Baltic States:
Commander T E Walter
Defence Attaché in Rome:
Brigadier Eric lanke

General

As a result of the Defence Analysis 2000 Plan, which was approved with some changes by the Norwegian parliament, the Royal Norwegian Navy is undergoing a thorough restructuring. This includes a shift of focus from a mainly anti-invasion oriented Navy towards a force capable of international operations as well as operations in national waters.

Personnel

(a) 2004: 4,950 officers and ratings
(b) 9 to 12 months' national service (up to 40 per cent of ships complement)

Coast Artillery

The fixed defence system of nine coastal forts and controlled minefields is in long-term storage. As a result, the Coastal Ranger Command was established in 2001 with a headquarters at Trondenes.

Coast Guard

Founded April 1977 with operational command held by Norwegian Defence Command. Main bases at Sortland (North) and Haakonsvern (South).

Air Force Squadrons (see *Shipborne* and *Land-based Aircraft*)

Aircraft (Squadron)	*Location*	*Duties*
Sea King Mk 43 (330)	Bodø, Banak, Sola, Ørland	SAR
Orion P-3N/C (333)	Andøya	LRMP
Lynx (337)	Coast Guard vessels/ Bardufoss	MP
Bell 412 (719, 339 & 720)	Bodø, Rygge, Bardufoss	Army Transport

Bases

Jåtta (Stavanger) Armed Forces HQ.
Reitan (Bodø) Regional Command North HQ.
Trondheim Regional Command South HQ.
Laksevag (Bergen)-Submarine Repair and Maintenance.
Ramsund-Supply/Repair/Maintenance.

Prefix to Ships' Names

KNM (Naval)
K/V (Coast Guard)

Strength of the Fleet

Type	*Active*	*Building (Projected)*
Submarines—Coastal	6	—
Frigates	3	5
Fast Attack Craft—Missile	15	5
Minelayers	1	—
Minesweepers/Hunters	8	—
Depot Ship	1	—
Auxiliaries	3	—
Naval District Auxiliaries	31	—
Coast Guard Vessels	9	—
Survey Vessels	7	—

DELETIONS

Submarines

2001	*Skolpen, Stord, Svenner, Kunna* (all to Poland)

Mine Warfare Forces

2001	*Vale* (to Latvia)
2002	*Orkla*

Amphibious Forces

2001	*Reinøysund, Rotsund*
2002	*Sørøysund, Maursund, Tjeldsun*

Coast Guard

2001	*Nornen, Lance, Stålbas*

PENNANT LIST

Notes: Naval District Auxiliaries are listed on page 518–519.

Submarines

S 300	Ula
S 301	Utsira
S 302	Utstein
S 303	Utvaer
S 304	Uthaug
S 305	Uredd

Frigates

F 301	Bergen
F 302	Trondheim
F 304	Narvik
F 310	Fridtjof Nansen (bldg)
F 311	Roald Amundsen (bldg)
F 312	Otto Sverdrup (bldg)
F 313	Helge Ingstad (bldg)
F 314	Thor Heyerdahl (bldg)

Minesweepers/Hunters

M 340	Oksøy
M 341	Karmøy
M 342	Måløy
M 343	Hinnøy
M 350	Alta
M 351	Otra
M 352	Rauma
M 354	Glomma

Minelayers

N 50	Tyr
N 52	Vidar

Patrol Forces

P 358	Hessa
P 359	Vigra
P 960	Skjold
P 986	Hauk
P 987	Ørn
P 988	Terne
P 989	Tjeld
P 990	Skarv
P 991	Teist
P 992	Jo
P 993	Lom
P 994	Stegg
P 995	Falk
P 996	Ravn
P 997	Gribb
P 998	Geir
P 999	Erle

Auxiliaries

A 530	Horten
A 533	Norge
A 535	Valkyrien

Coast Guard

W 303	Svalbard
W 310	Eigun
W 312	Ålesund
W 313	Tromsö
W 315	Nordsjøbas
W 316	Malene Østervold
W 317	Lafjord
W 319	Thorsteinson
W 320	Nordkapp
W 321	Senja
W 322	Andenes

SUBMARINES

Notes: Norway withdrew from the 'Viking' submarine project on 13 June 2003 at the end of the Project Definition Phase Step 1. It has retained observer status in the project which is being taken forward by Sweden and Denmark. Following the reduction of submarine forces to the six 'Ula' class, there is no longer a requirement for new submarines before 2020.

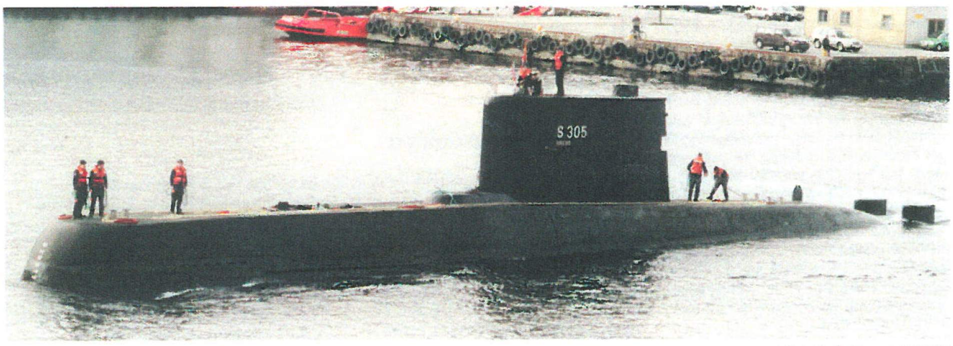
6 ULA CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ULA	S 300	Thyssen Nordseewerke, Emden	29 Jan 1987	28 July 1988	27 Apr 1989
UREDD	S 305	Thyssen Nordseewerke, Emden	23 June 1988	22 Sep 1989	3 May 1990
UTVAER	S 303	Thyssen Nordseewerke, Emden	8 Dec 1988	19 Apr 1990	8 Nov 1990
UTHAUG	S 304	Thyssen Nordseewerke, Emden	15 June 1989	18 Oct 1990	7 May 1991
UTSTEIN	S 302	Thyssen Nordseewerke, Emden	6 Dec 1989	25 Apr 1991	14 Nov 1991
UTSIRA	S 301	Thyssen Nordseewerke, Emden	15 June 1990	21 Nov 1991	30 Apr 1992

Displacement, tons: 1,040 surfaced; 1,150 dived
Dimensions, feet (metres): 193.6 × 17.7 × 15.1 *(59 × 5.4 × 4.6)*
Main machinery: Diesel-electric; 2 MTU 16V 396 SB83 diesels; 2,700 hp(m) *(1.98 MW)* sustained; 1 Siemens motor; 6,000 hp(m) *(4.41 MW)*; 1 shaft
Speed, knots: 11 surfaced; 23 dived
Range, miles: 5,000 at 8 kt
Complement: 21 (5 officers)

Torpedoes: 8—21 in *(533 mm)* bow tubes. 14 AEG DM 2A3 Sehecht; dual purpose; wire-guided; active/passive homing to 28 km *(15 n miles)* at 23 kt; 13 km *(7 n miles)* at 35 kt; warhead 260 kg; depth to 460 m.
Countermeasures: ESM: Racal Sealion; radar warning.
Weapons control: Kongsberg MSI-90(U) TFCS.
Radars: Surface search: Kelvin Hughes 1007; I-band.
Sonars: Atlas Elektronik CSU 83; active/passive intercept search and attack; medium frequency.
Thomson Sintra; flank array; passive; low frequency.

Programmes: Contract signed on 30 September 1982. This was a joint West German/Norwegian effort known as Project 210 in Germany. Although final assembly was at Thyssen a number of pressure hull sections were provided by Norway.



UREDD *4/2002, P Froud* / 0529075

Modernisation: MSI-90U being upgraded 2000-2005.
Structure: Diving depth, 250 m *(820 ft)*. The basic command and weapon control systems are Norwegian, the attack sonar is German but the flank array, based on piezoelectric polymer antenna technology, was developed in France and substantially reduces flow noise. Calzoni Trident modular system of non-penetrating masts has been installed. Zeiss periscopes.

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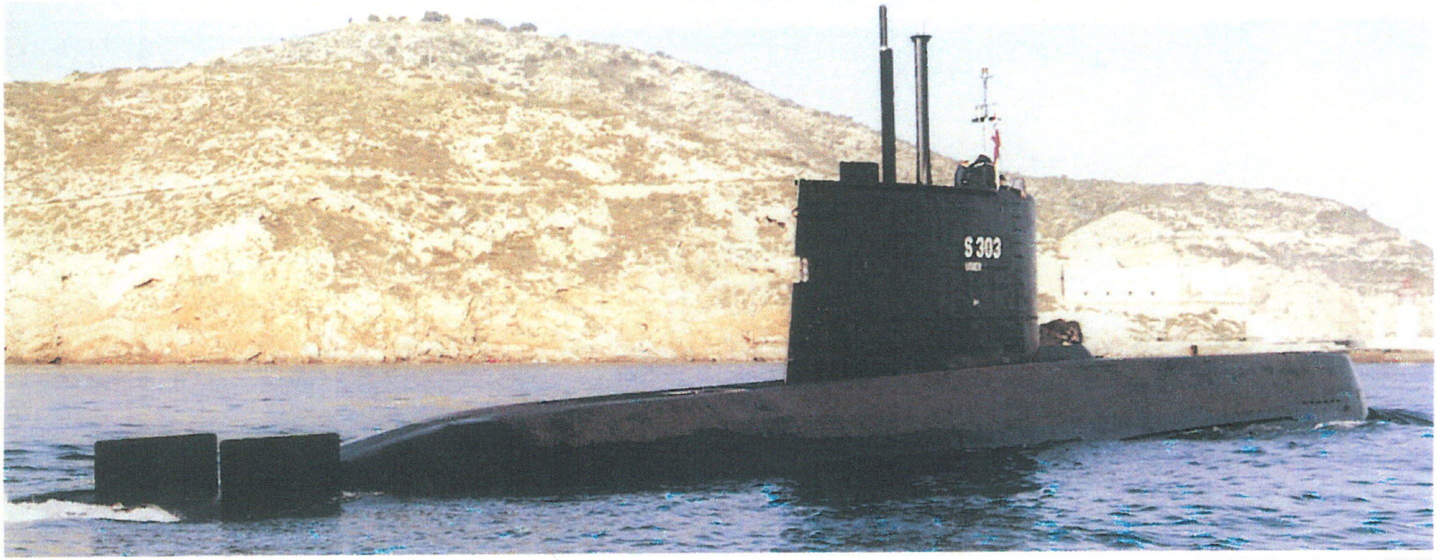
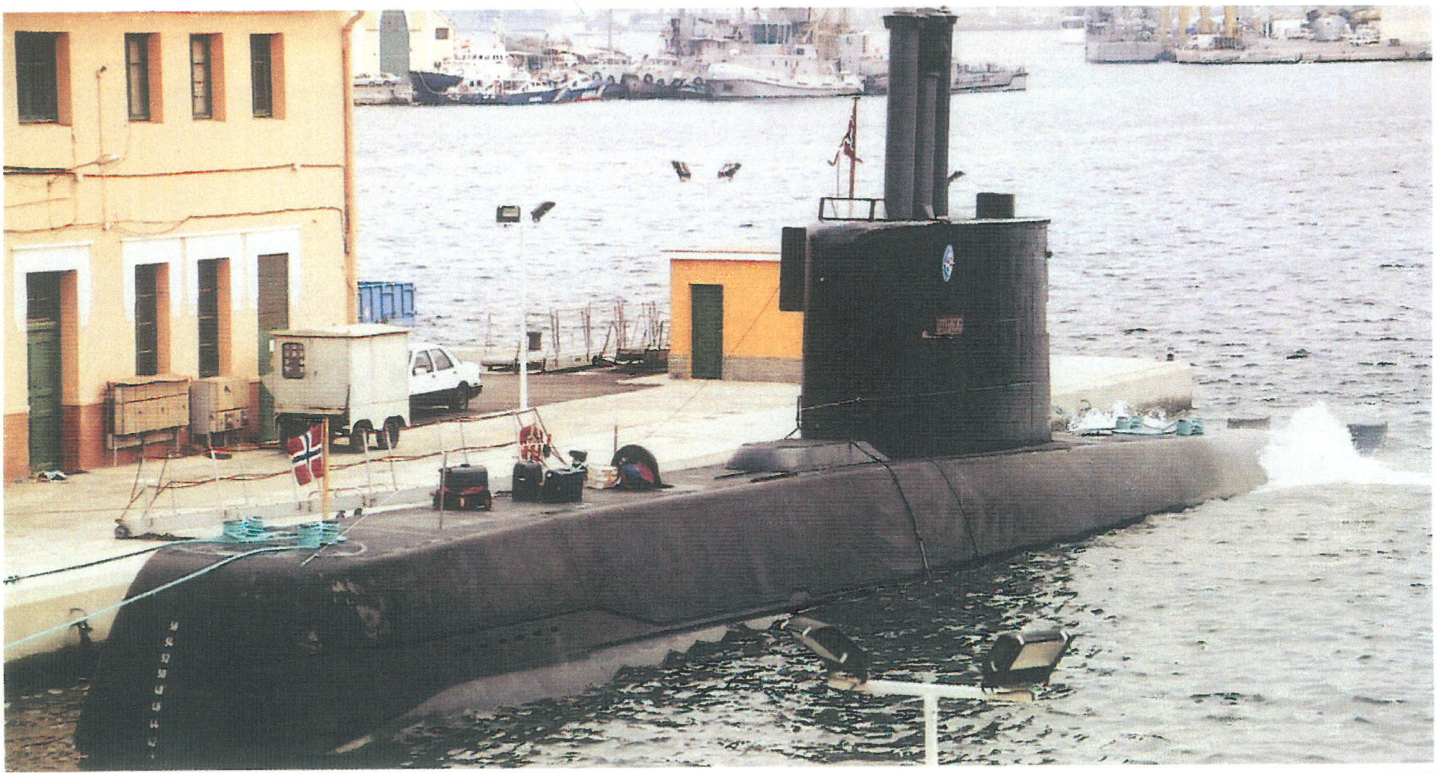


UTVAER *1/2003*, Diego Quevedo* / 0572606

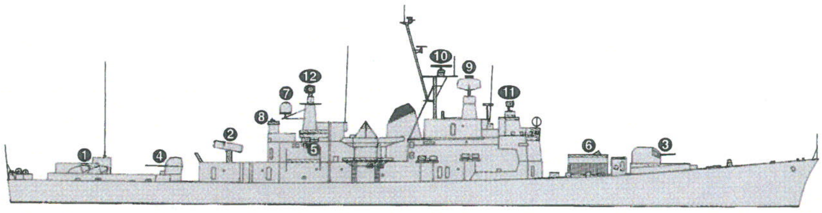


UTHAUG *9/2003*, Diego Quevedo* / 0572607

FRIGATES

3 OSLO CLASS (FFGM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
BERGEN	F 301	Marinens Hovedverft, Horten	1964	23 Aug 1965	15 June 1967
TRONDHEIM	F 302	Marinens Hovedverft, Horten	1963	4 Sep 1964	2 June 1966
NARVIK	F 304	Marinens Hovedverft, Horten	1964	8 Jan 1965	30 Nov 1966



TRONDHEIM

(Scale 1 : 900), Ian Sturton / 0012838

Displacement, tons: 1,650 standard; 1,950 full load
Dimensions, feet (metres): 317 × 36.8 × 18 (screws) *(96.6 × 11.2 × 5.5)*
Main machinery: 2 Babcock & Wilcox boilers; 600 psi *(42.18 kg/cm²)*; 850°F *(454°C)*; 1 set De Laval Ljungstrom PN20 geared turbines; 20,000 hp(m) *(14.7 MW)*; 1 shaft
Speed, knots: 25+. **Range, miles:** 4,500 at 15 kt
Complement: 125 (11 officers)

Missiles: SSM: 4 Kongsberg Penguin Mk 1 ❶; IR homing to 20 km *(10.8 n miles)* at 0.7 Mach; warhead 120 kg.
SAM: Raytheon NATO RIM-7M Sea Sparrow Mk 29 octuple launcher ❷; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg; 24 cell magazine.
Guns: 2 US 3 in *(76 mm)*/50 Mk 33 (twin) ❸; 50 rds/min to 12.8 km *(7 n miles)*; weight of shell 6 kg.
1 Bofors 40 mm/70 ❹; 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 0.96 kg
2 Rheinmetall 20 mm/20 (not in all); 1,000 rds/min to 2 km.
Torpedoes: 6—324 mm US Mk 32 (2 triple) tubes ❺. Marconi Stingray; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 45 kt; warhead 32 kg (shaped charge); depth to 750 m *(2,460 ft)*.
A/S mortars: Kongsberg Terne III 6-tubed trainable ❻; range pattern from 400-5,000 m; warhead 70 kg. Automatic reloading in 40 seconds.
Mines: Laying capability.
Countermeasures: Decoys: 2 chaff launchers.
ESM: Argo AR 700; intercept.
Combat data systems: NFT MSI-3100 (supplemented by Siemens ODIN) action data automation; Link 11 and 14. SATCOM ❼.

Weapons control: Mk 91 MFCS. TVT 300 tracker ❽.
Radars: Air search: Siemens/Plessey AWS-9 ❾; 2D; E/F-band.
Surface search: Racal Decca TM 1226 ❿; I-band.
Fire control: NobelTech 9LV 218 Mk 2 ⓫; I-band (includes search).
Raytheon Mk 95 ⓬, I/J-band (for Sea Sparrow).
Navigation: Decca; I-band.
Sonars: Thomson Sintra/Simrad TSM 2633; combined hull and VDS; active search and attack; medium frequency.
Simrad Terne III; active attack; high frequency.

Programmes: Built under the five year naval construction programme approved by the Norwegian Storting (Parliament) late in 1960. Although all the ships of this class were constructed in the Norwegian Naval Dockyard, half the cost was borne by Norway and the other half by the US.
Modernisation: All ships modernised with improvements in weapons control and habitability; new countermeasures equipment includes two chaff launchers; Spherion TSM-2633 sonar (with VDS) (a joint Thomson Sintra/Simrad-Subsea (Norway) project); the after 76 mm mounting replaced by a Bofors 40 mm/70; and MSI 3100 action data automation. Modernisation completion programme: F 302 30 November 1987, F 304 21 October 1988, F 301 4 April 1990. Plessey AWS-9 radar fitted in 1996-98 together with Link 11 and GPS.
Structure: The hull and propulsion design of these ships is based on that of the 'Dealey' class destroyer escorts (now deleted) of the US Navy, but considerably modified to suit Norwegian requirements. The hulls became stressed by towing VDS in heavy seas and were strengthened in 1995-96 increasing displacement by over 200 tons.
Operational: The fifth of class *Oslo* sank under tow south of Bergen in January 1994, after an engine failure had caused her to run aground in heavy weather. *Stavanger* laid up in 1999 and sunk as target for torpedo firings in 2002.

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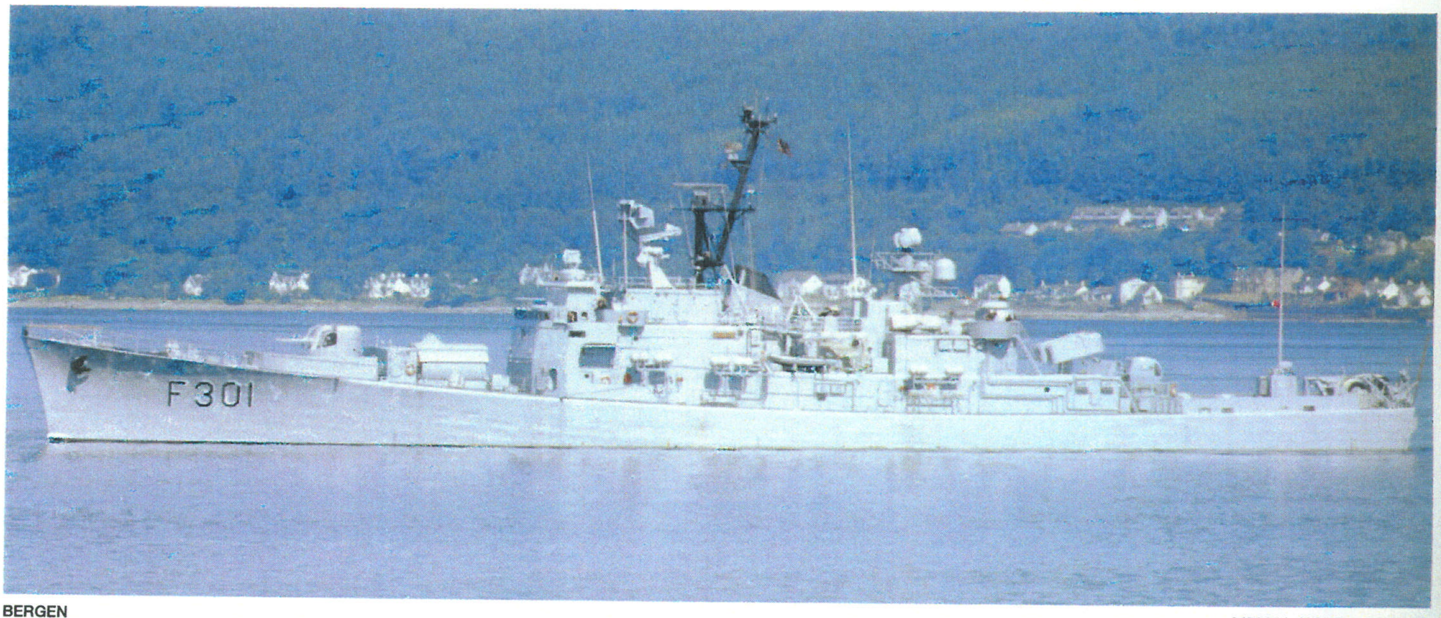
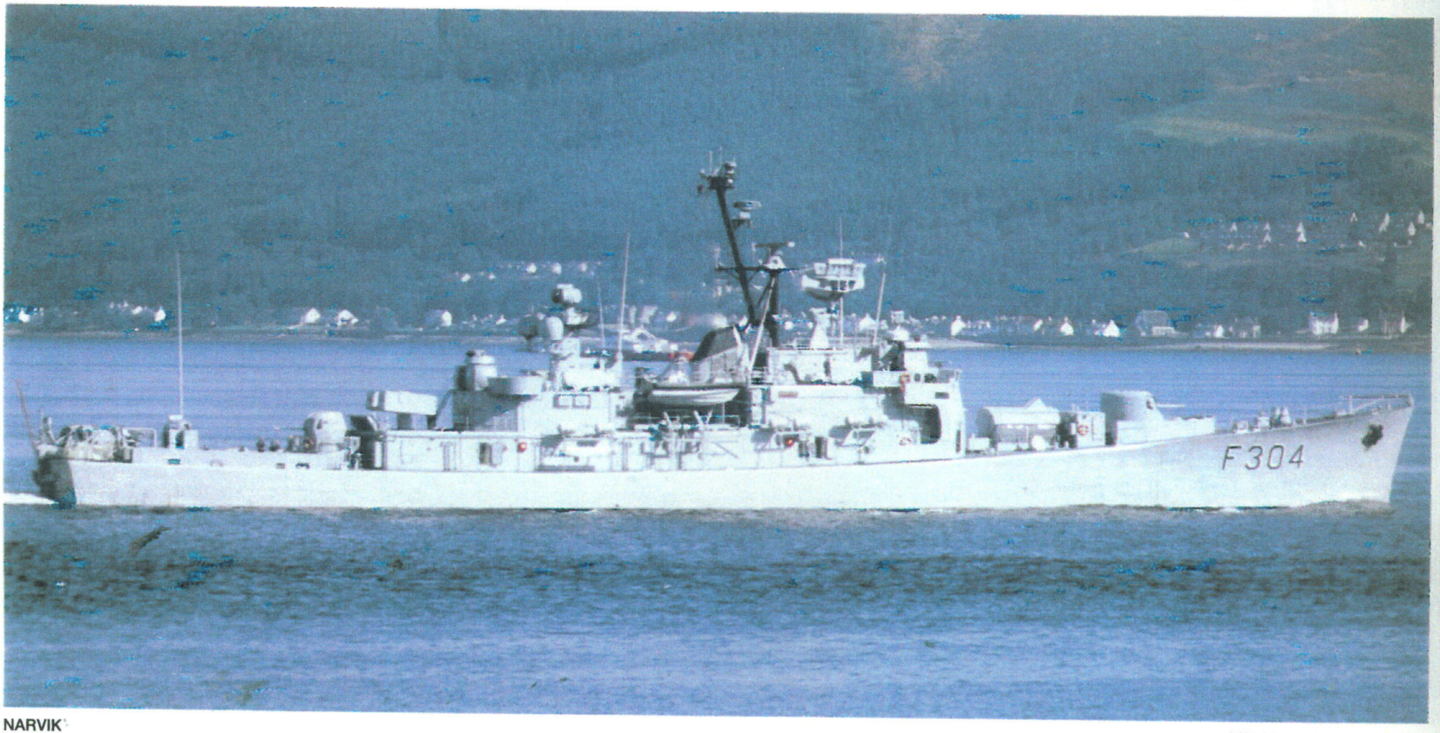


BERGEN

6/2003*, H M Steele / 0572593



NARVIK

6/2003*, H M Steele / 0572596

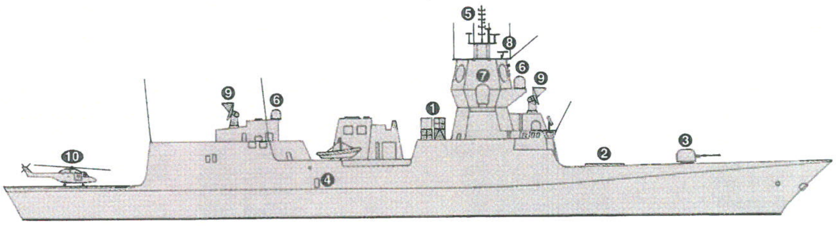
0 + 5 FRIDTJOF NANSEN CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
FRIDTJOF NANSEN	F 310	Izar/Ferrol	9 Apr 2003	5 May 2004	Oct 2005
ROALD AMUNDSEN	F 311	Izar/Ferrol	2004	2005	Oct 2006
OTTO SVERDRUP	F 312	Izar/Ferrol	2005	2006	Oct 2007
HELGE INGSTAD	F 313	Izar/Ferrol	2006	2007	Oct 2008
THOR HEYERDAHL	F 314	Izar/Ferrol	2007	2008	Oct 2009

Displacement, tons: 5,290 full load
Dimensions, feet (metres): 433.1 × 55.1 × 16.1 *(132 × 16.8 × 4.9)*
Main machinery: CODAG; 1 GE LM 2500 gas turbine; 26,112 hp *(19.2 MW)*; 2 Bazán Bravo 12V diesels; 12,240 hp(m) *(9 MW)*; 2 shafts; cp props; bow thruster; 1,360 hp(m) *(1 MW)*
Speed, knots: 26. **Range, miles:** 4,500 at 16 kt
Complement: 120 plus 26 spare

Missiles: SSM: 8 Kongsberg NSM ①.
SAM: Mk 41 VLS (8 cells) ②; 32 Evolved Sea Sparrow RIM 162B; semi-active radar homing to 18 km (9.7 n miles) at 3.6 Mach; warhead 39 kg
Guns: 1 Oto Melara 76 mm/62 Super Rapid ③. 120 rds/min to 15.75 km (8.5 n miles) anti-surface; 12 km (6.5 n miles) anti-aircraft; weight of shell 6 kg.
4—12.7 mm MGs. Fitted for 1—40 mm/70.
Torpedoes: 4—324 mm (2 double) tubes ④. Marconi Stingray; active/passive homing to 11 km (5.9 n miles) at 45 kt; warhead 35 kg shaped charge.
Countermeasures: Decoys: Terma SKWS chaff, IR and acoustic.
ESM: Condor CS-3701; intercept ⑤.
Combat data systems: AEGIS with ASW and ASuW segments from Kongsberg; Link 11 (fitted for Link 16/22).
Weapons control: Sagem VIGY 20 optronic director ⑥.
Radars: Air search: Lockheed Martin SPY-1F ⑦; E/F-band.
Surface search: Litton; E/I-band ⑧.
Fire control: 2 Mk 82 (SPG-62); I/J-band ⑨.
Navigation: 2 Litton; I-band.
IFF: Mk XII.
Sonars: Thomson Marconi Spherion MRS 2000 and Mk 2 ATAS; combined active/passive towed array.

Helicopters: 1 NH90 ⑩.



FRIDTJOF NANSEN *(Scale 1 : 1,200), Ian Sturton* / 0105165

FRIDTJOF NANSEN (computer graphic) *2000, IZAR* / 0105164

Programmes: Design Definition for a new class of frigates started in March 1997. IZAR and Lockheed Martin selected in March 2000 and contract signed 23 June 2000. Most of the construction is being undertaken by Izar. Two Norwegian shipyards, Bergen and Kvaerner Kleven, are collaborating to build six blocks fo the aft section and three blocks for the bow section of each ship. These blocks are to be shipped to Ferrol where final assembly is to take place. Lockheed Martin is developing the combat system (in conjunction with Kongsberg Defence & Aerospace).

Structure: The design is based on the 'Alvaro de Bazan' class.
Operational: Despite being fitted with Lockheed Martin SPY-1F radar and an AEGIS-derived combat system the primary roles of these ships will be anti-submarine and anti-surface warfare.

UPDATED

SHIPBORNE AIRCRAFT

Numbers/Type: 6 NH Industries NH 90 NFH.
Operational speed: 157 kt *(291 km/h)*.
Service ceiling: 13,940 ft *(4,250 m)*.
Range: 621 n miles *(1,150 km)*.
Role/Weapon systems: Six ASW shipborne aircraft and eight with Coast Guard configuration to start entering service in 2005. Option for further ten SAR aircraft. ASW variant has crew of three. Sensors to be announced.

VERIFIED

NH 90 *2001, NH Industries* / 0094462

Numbers/Type: 6 Westland Lynx Mk 86.
Operational speed: 125 kt *(232 km/h)*.
Service ceiling: 12,500 ft *(3,810 m)*.
Range: 320 n miles *(590 km)*.
Role/Weapon systems: Operated by Air Force on behalf of the Coast Guard for fishery protection, offshore oil protection and SAR; embarked in CG vessels and shore-based. Sensors: Search radar, FLIR may be fitted, ESM. Weapons: Generally unarmed.

UPDATED

KYSTVAKT
216

LYNX *6/2002*, Royal Norwegian Navy* / 0572608

LAND-BASED MARITIME AIRCRAFT

Notes: The Air Force has F-16 Falcons armed with Penguin 3 ASMs.

Numbers/Type: 4 Lockheed P-3C Orion.
Operational speed: 410 kt *(760 km/h)*.
Service ceiling: 28,300 ft *(8,625 m)*.
Range: 4,000 n miles *(7,410 km)*.
Role/Weapon systems: Long-range MR and oceanic surveillance duties in peacetime, with ASW added as a war role. Updated in 1998-99 with new radars and new tactical computers. P-3Ns used by Coast Guard paid off in 1999. Sensors: APS-137(V)5 radar, ASQ-81 MAD, AQS-212 processor and computer, IFF, AAR-36 IR detection; AAR-47 ESM; ALE 47 countermeasures; sonobuoys. Weapons: ASW; 8 MUSL Stingray torpedoes, depth bombs or mines. ASV; Penguin NFT Mk 3 ASM.

VERIFIED

P-3C *6/2001, A Sharma* / 0130100

Numbers/Type: 12 Westland Sea King Mk 43B.
Operational speed: 125 kt *(232 km/h)*.
Service ceiling: 10,500 ft *(3,200 m)*.
Range: 630 n miles *(1,165 km)*.
Role/Weapon systems: SAR, surface search and surveillance helicopter; supplemented by civil helicopters in wartime. Two 43B delivered in May 1996; remainder updated to 43B standard. Sensors: FLIR 2000 and dual Bendix radars RDR 1500 and RDR 1300. Weapons: Generally unarmed.

VERIFIED

REDNINGSTJENESTE
071

SEA KING 43B *2001, GKN Westland* / 0051448

PATROL FORCES

14 HAUK CLASS (FAST ATTACK CRAFT—MISSILE) (PTGM)

Name	*No*	*Builders (see Programmes)*	*Commissioned*
HAUK	P 986	Bergens Mek Verksteder	17 Aug 1977
ØRN	P 987	Bergens Mek Verksteder	19 Jan 1979
TERNE	P 988	Bergens Mek Verksteder	13 Mar 1979
TJELD	P 989	Bergens Mek Verksteder	25 May 1979
SKARV	P 990	Bergens Mek Verksteder	17 July 1979
TEIST	P 991	Bergens Mek Verksteder	11 Sep 1979
JO	P 992	Bergens Mek Verksteder	1 Nov 1979
LOM	P 993	Bergens Mek Verksteder	15 Jan 1980
STEGG	P 994	Bergens Mek Verksteder	18 Mar 1980
FALK	P 995	Bergens Mek Verksteder	30 Apr 1980
RAVN	P 996	Westamarin A/S, Alta	20 May 1980
GRIBB	P 997	Westamarin A/S, Alta	10 July 1980
GEIR	P 998	Westamarin A/S, Alta	16 Sep 1980
ERLE	P 999	Westamarin A/S, Alta	10 Dec 1980

Displacement, tons: 120 standard; 160 full load
Dimensions, feet (metres): 120 × 20.3 × 5.9 *(36.5 × 6.2 × 1.8)*
Main machinery: 2 MTU 16V 538 TB92 diesels; 6,820 hp(m) *(5 MW)* sustained; 2 shafts
Speed, knots: 32. **Range, miles:** 440 at 30 kt
Complement: 24 (6 officers)

Missiles: SSM: Up to 6 Kongsberg Penguin Mk 2 Mod 5; IR homing to 27 km *(14.6 n miles)* at 0.8 Mach; warhead 120 kg.
SAM: Twin Simbad launcher for Matra Sadral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg.
Guns: 1 Bofors 40 mm/70; 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 0.96 kg.
Torpedoes: 2—21 in *(533 mm)* tubes. FFV Type 613; passive homing to 27 km *(14.5 n miles)* at 45 kt; warhead 240 kg.
Countermeasures: Decoys: Chaff launcher.
ESM: Argo intercept.
Combat data systems: DCN SENIT 2000 (from late 2001). Link 11.
Weapons control: Kongsberg MSI-80S or Sagem VIGY-20 optronic director.
Radars: Surface search/navigation: 2 Litton; I-band.

Programmes: Ordered 12 June 1975.
Modernisation: Simbad twin launchers for SAM fitted from 1994 to replace 20 mm gun. A further upgrade programme will extend the lives of these craft until replaced by the 'Skjold' class or until 2015. 991, 992 and 994 were fitted with the SENIT 2000 combat data system in 2001 with the remainder of the class to be fitted by late 2003. Other aspects of the upgrade include a new navigation radar, an optronic director and new communications and bridge equipment. Trials on a wave-piercing bow have been conducted in 989 to improve hydrodynamic performance. If successful, similar modifications may be made to the rest of the class.
Operational: Penguin missiles are not normally embarked. Four craft were based at Rota, Spain, during 2003 to support NATO surveillance of the Strait of Gibraltar.

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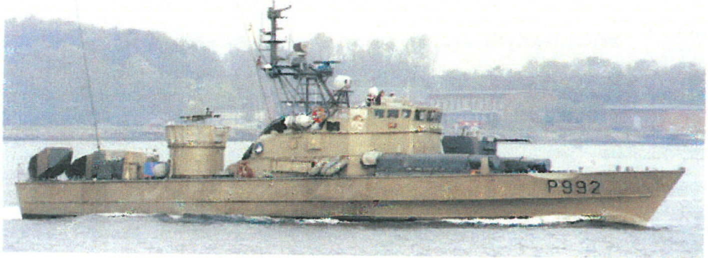
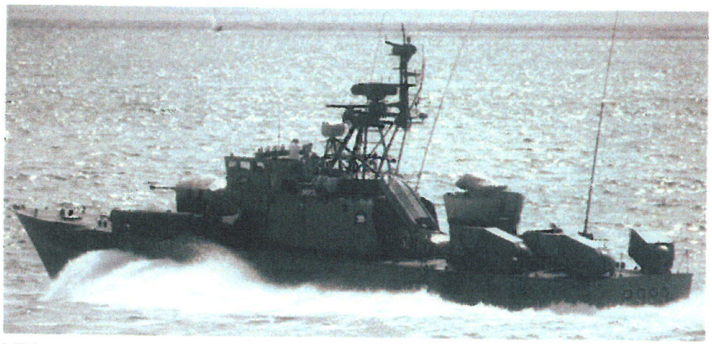

JO *4/2003*, Frank Findler* / 0572603


LOM *6/2002, E & M Laursen* / 0528969

20 COMBATBOAT 90N (LCP)

TRONDENES KA 1
HYSNES KA 2
HELLEN KA 3
TORAAS KA 4
MØVIK KA 5
SKROLSVIK KA 11
KRÅKENES KA 12
STANGENES KA 13
KJØKØY KA 14
MØRVIKA KA 15
KOPAAS KA 16
TANGEN KA 17
ODDANE KA 18
MALMØYA KA 19
BRETTINGEN KA 21
LØKHAUG KA 22
SØRVIKNES KA 23
OSTERNES KA 31
FJELL KA 32
LERØY KA 33

Displacement, tons: 19 full load
Dimensions, feet (metres): 52.2 × 12.5 × 2.6 *(15.9 × 3.8 × 0.8)*
Main machinery: 2 SAAB Scania DSI 14 diesels; 1,104 hp(m) *(812 kW)* or 1,251 hp(m) *(920 kW)* (KA 21-43) sustained; 2 FF 450 water-jets or 2 Kamewa FF 410 (KA 21-43)
Speed, knots: 35 or 40; 20 in Sea State 3
Range, miles: 240 at 20 kt
Complement: 3
Military lift: 2.8 tons or 20 troops
Guns: 1—12.7 mm MG.
Radars: Navigation: I-band.

Comment: Ordered from Dockstavarvet, Sweden. Four Batch 1 units delivered for trials in July and October 1996. Three more of the class delivered in 1997, 13 in 1998. Used to carry mobile light missile units and prime method of transportation for new Coastal Ranger Commando. Similar in most details to the Swedish Coastal Artillery craft. Names are mostly taken from Coastal Fortresses.

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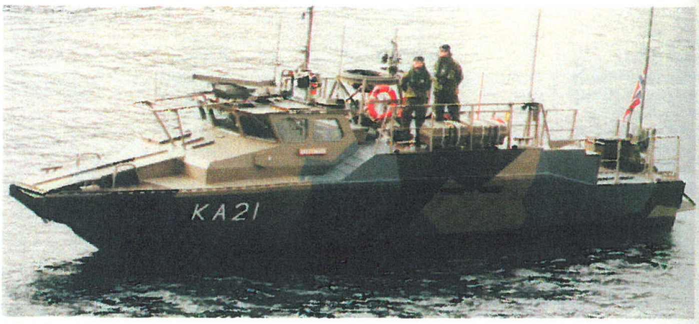
BRETTINGEN *4/2002, P Froud* / 0529076

1 + 5 SKJOLD CLASS (PTGMF)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SKJOLD	P 960	Kvaerner Mandal	22 Sep 1998	17 Apr 1999

Displacement, tons: 260 full load
Dimensions, feet (metres): 153.5 × 44.3 × 7.5; 2.6 on cushion *(46.8 × 13.5 × 2.3; 0.8)*
Main machinery: CODAG (P 960); 2 Allison 571-K gas turbines; 16,320 hp(m) *(12 MW)*; 2 MTU 183 cruise diesels; 1,632 hp(m) *(1.2 MW)*; 2 Kamewa water-jets
COGAG: 2 Pratt & Whitney ST 40 gas turbines; 10,730 hp *(8 MW)*; 2 Pratt & Whitney ST 18 gas turbines; 5,365 hp *(4 MW)*
2 MTU 12V 183 TE92 diesels (lift); 2,000 hp(m) *(1.47 MW)*
Speed, knots: 57; 44 in Sea State 3. **Range, miles:** 800 at 40 kt
Complement: 15

Missiles: 8 SSM; 8 Kongsberg NSM.
SAM: Mistral; IR homing to 4 km *(2.2 n miles)* at 2.5 Mach; warhead 3 kg.
Guns: 1 Otobreda 76 mm/62. Super Rapid; 120 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
Countermeasures: Buck Neue MASS decoys.
ESM: EDO CS 3701; intercept.
Combat data systems: DCN Senit 2000; Link 11/16.
Weapons control: Sagem VIGX-20 optronic director.
Radars: Air/surface search: Thales MRR; 3D; G-band.
Navigation: I-band.
Fire control: CelsiusTech Ceros 2000; I/J-band.

Programmes: Preproduction version ordered 30 August 1996. Building of five additional craft recommended by the Norwegian parliament in 2001 and confirmed in 2002. Contract for a further five vessels awarded in 2003 to Skjold Consortium (SPC) — comprising Umoe Mandal, Armaris and Kongsberg Defence & Aerospace. Ships to be built at Umoe Mandal shipyard for delivery between 2006 and 2009. Following evaluation by the USN and USCG in 2001-02, *Skjold* to be refitted to serve as a production platform testbed before being itself brought up to full operational standard.
Structure: SES hull with advanced stealth technology including anechoic coatings. Building on experience in US trials, a more raked bow has been adopted to improve performance into sea. The foredeck structure is also to be strengthened around the gun mounting. Production vessels to be powered by COGAG rather than CODAD arrangement. Two quadruple SSM launchers are to be recessed aft of the bridge. These will elevate to fire and then retract.

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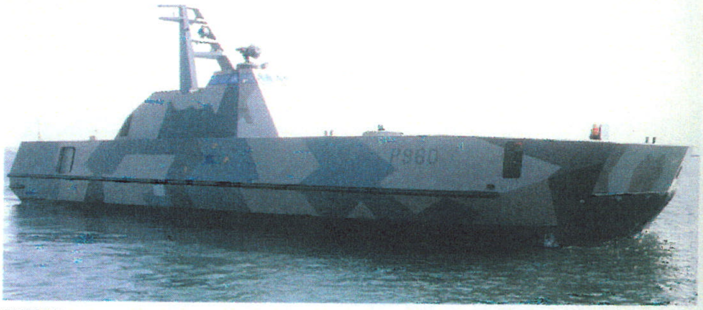
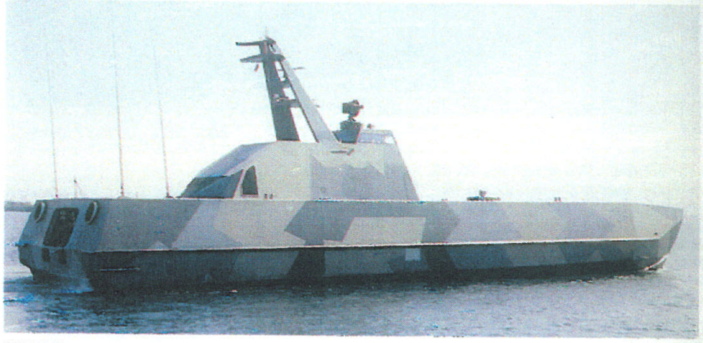

SKJOLD *5/2001, Per Körnefeldt* / 0130099


SKJOLD *5/2001, E & M Laursen* / 0130098

7 ALUSAFE 1290 CLASS (INSHORE PATROL CRAFT) (PB)

Displacement, tons: 7.6
Dimensions, feet (metres): 43.2 × 11.5 × 2.5 *(12.9 × 3.5 × 0.75)*
Main machinery: 2 Volvo Penta TAMD 74 EDC diesels; 900 hp *(670 kW)*; 2 Kamewa K28 waterjets
Speed, knots: 42
Complement: 2 (plus 13 troops)
Guns: 2—12.7 mm MGs.

Comment: Aluminium hull. Built by Maritime Partner, Ålesund and delivered in 2002. Designed for used by the Norwegian Naval Home Guard as multifunction assault and patrol vessels by the coastal rangers. The craft are also available to support police, customs, environmental and fishery authorities.

NEW ENTRY

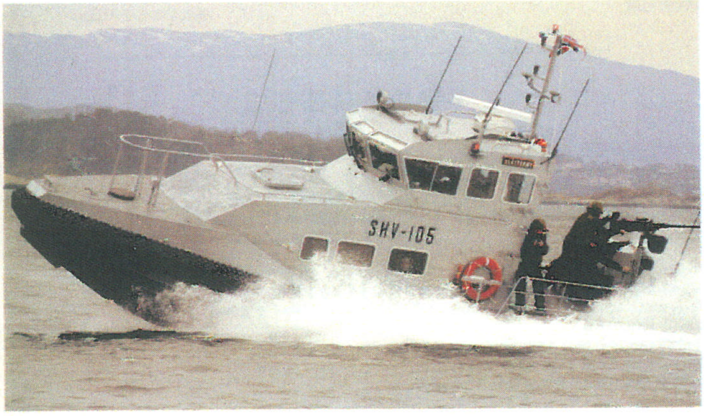
3 ALUSAFE 1300 CLASS (INSHORE PATROL CRAFT) (PB)

SHV 104-106

Displacement, tons: 10
Dimensions, feet (metres): 43.6 × 12.0 × 2.5 *(13.3 × 3.65 × 0.75)*
Main machinery: 2 Volvo Penta TAMD 74EDC diesels; 900 hp *(670 kW)*; 2 Kamewa K28 waterjets
Speed, knots: 40
Complement: 2 (plus 13 troops)
Guns: 2—12.7 mm MGs.

Comment: Aluminium hull. Built by Maritime Partner, Ålesund and delivered in 2003. Based at Stavanger, Bergen and Trondheim. Designed for use by the Norwegian Naval Home Guard as multifunction patrol vessels for the naval home guard. The craft are also available to support police, customs, environmental and fishery authorities.

NEW ENTRY



SHV 105 *5/2003*, Defence Command Norway* / 0530940

MINE WARFARE FORCES

8 OKSØY/ALTA CLASS (MINEHUNTERS/SWEEPERS) (MHCM/MSCM)

Name	*No*	*Builders*	*Commissioned*
Hunters			
OKSØY	M 340	Kvaerner Mandal	24 Mar 1994
KARMØY	M 341	Kvaerner Mandal	24 Oct 1994
MÅLØY	M 342	Kvaerner Mandal	24 Mar 1995
HINNØY	M 343	Kvaerner Mandal	8 Sep 1995
Sweepers			
ALTA	M 350	Kvaerner Mandal	12 Jan 1996
OTRA	M 351	Kvaerner Mandal	8 Nov 1996
RAUMA	M 352	Kvaerner Mandal	2 Dec 1996
GLOMMA	M 354	Kvaerner Mandal	1 July 1997

Displacement, tons: 375 full load
Dimensions, feet (metres): 181.1 × 44.6 × 8.2 (2.76 cushion) *(55.2 × 13.6 × 2.5 (0.84))*
Main machinery: 2 MTU 12V 396 TE84 diesels; 3,700 hp(m) *(2.72 MW)* sustained; 2 Kvaerner Eureka water-jets; 2 MTU 8V 396 TE54 diesels; 1,740 hp(m) *(1.28 MW/60 Hz)* sustained; lift engines
Speed, knots: 30. **Range, miles:** 1,500 at 20 kt
Complement: 38 (12 officers) (minehunters); 32 (10 officers) (minesweepers)

Missiles: SAM: Matra Sadral twin launcher; Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg.
Guns: 1 or 2 Rheinmetall 20 mm. 2—12.7 mm MGs.
Countermeasures: MCMV: 2 Pluto submersibles (minehunter); mechanical, AGATE (air gun and transducer equipment) acoustic and Elma magnetic sweep (minesweepers). Minesweeper mini torpedoes can be carried.
Radars: Navigation: 2 Racal Decca; I-band.
Sonars: Thomson Sintra/Simrad TSM 2023N; hull-mounted (minehunters); high frequency. Simrad Subsea SA 950; hull-mounted (minesweepers); high frequency.

Programmes: Order placed with Kvaerner on 9 November 1989. Four are minehunters, the remainder minesweepers.
Modernisation: Trials of the Kongsberg Simrad Hugin 1000 Autonomous Underwater Vehicle (AUV) conducted in M 341 during 2001. Designed to conduct route survey and forward mine reconnaissance, interim operational capability to be established in 2004 with full evaluation to follow in 2005. Hugin 1000 can dive to 600 m and has an endurance of 20 hours.
Structure: Design developed by the Navy in Bergen with the Defence Research Institute and Norsk Veritas and uses an air cushion created by the surface effect between two hulls. The hull is built of Fibre Reinforced Plastics (FRP) in sandwich configuration. The ROVs are carried in a large hangar and are launched by two hydraulic cranes. The minesweeper has an A frame aft for the sweep gear. SAM launcher mounted forward of the bridge.
Operational: Simrad Albatross tactical system including mapping; Cast/Del Norte mobile positioning system with GPS. The catamaran design is claimed to give higher transit speeds with lesser installed power than a traditional hull design. Other advantages are lower magnetic and acoustic signatures, clearer water for sonar operations and less susceptibility to shock. *Orkla* M 353 was lost after a catastrophic fire on 19 November 2002.

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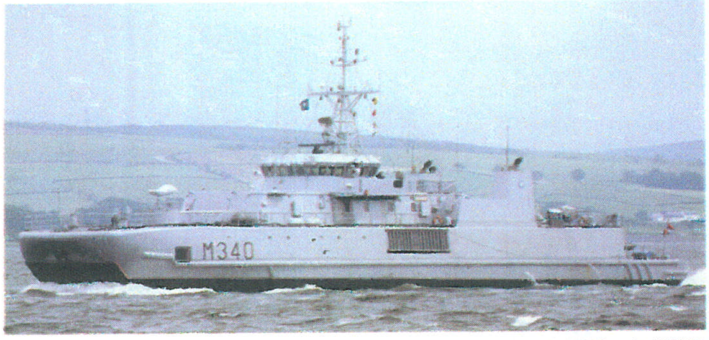
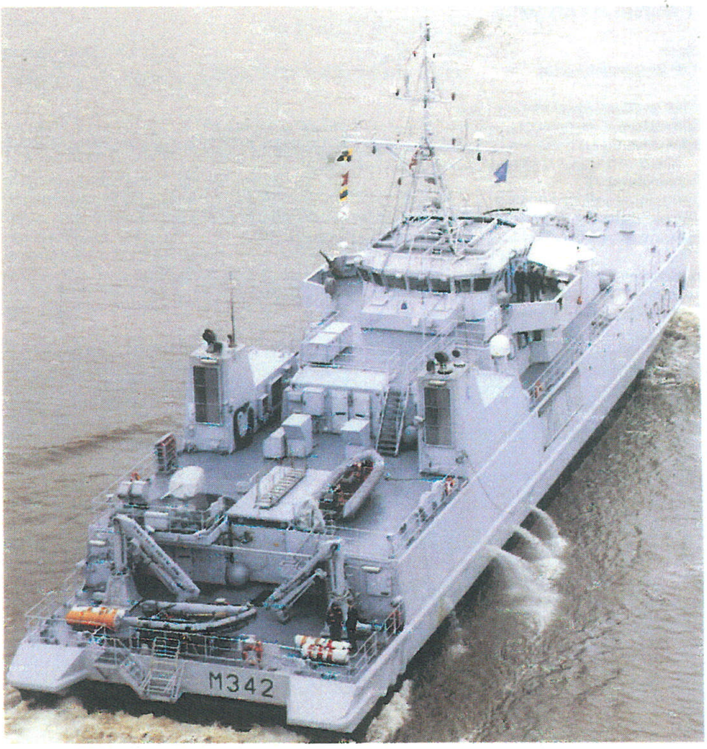
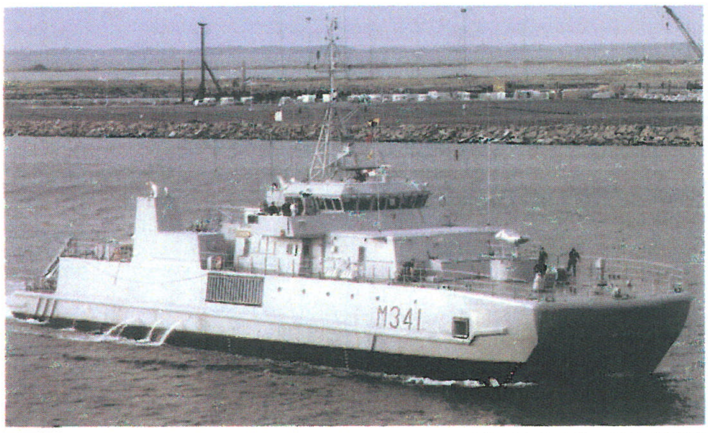


OKSØY *6/2003*, H M Steele* / 0572599



MÅLØY *2/2004*, Harald Carstens* / 0572605



KARMØY *6/2003*, Per Körnefeldt* / 0572600

1 VIDAR CLASS (COASTAL MINELAYER) (ML/AGF)

Name	*No*	*Builders*	*Launched*	*Commissioned*
VIDAR	N 52	Mjellem and Karlsen, Bergen	18 Mar 1977	21 Oct 1977

Displacement, tons: 1,500 standard; 1,673 full load
Dimensions, feet (metres): 212.6 × 39.4 × 13.1 *(64.8 × 12 × 4)*
Main machinery: 2 Wichmann 7AX diesels; 4,200 hp(m) *(3.1 MW)*; 2 shafts; auxiliary motor; 425 hp(m) *(312 kW)*; bow thruster
Speed, knots: 15
Complement: 50

Guns: 2 Bofors 40 mm/70; 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 0.96 kg.
Mines: 300-400 (dependent on type) on 3 decks with an automatic lift between. Loaded through hatches forward and aft, each served by 2 cranes.
Weapons control: TVT optronic director.
Radars: Surface search: 2 Racal Decca TM 1226; I-band.
Sonars: Simrad; hull-mounted; search and attack; medium/high frequency.

Programmes: Ordered 11 June 1975.
Operational: Versatile ship that can perform a number of roles in addition to minelaying. Modified for a command and control role to become a Flagship in May 1998 and to be retained in service until 2008.

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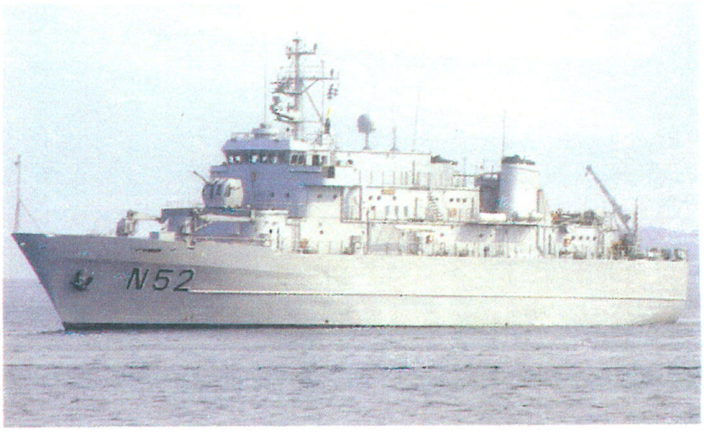

VIDAR *4/2003*, Martin Mokrus* / 0572604

1 MINELAYER (ML)

Name	*No*	*Builders*	*Commissioned*
TYR (ex-*Standby Master*)	N 50	Alesund Mekaniske Verksted	1981

Displacement, tons: 495 full load
Dimensions, feet (metres): 138.8 × 33.1 × 11.5 *(42.3 × 10.1 × 3.5)*
Main machinery: 2 Deutz SBA12M816 diesels; 1,300 hp(m) *(956 kW)*; 1 shaft; cp prop; 1 MWM diesel; 150 hp(m) *(110 kW)*; bow and stern thrusters
Speed, knots: 12
Complement: 22 (7 officers)
Mines: 2 rails.
Radars: Navigation: Furuno 711 and Furuno 1011; I-band.

Comment: Former oil rig pollution control ship. Acquired in December 1993 and converted by Mjellum & Karlsen, Bergen. Recommissioned 7 March 1995 as a minelayer, and for the maintenance of controlled minefields. Carries a ROV.

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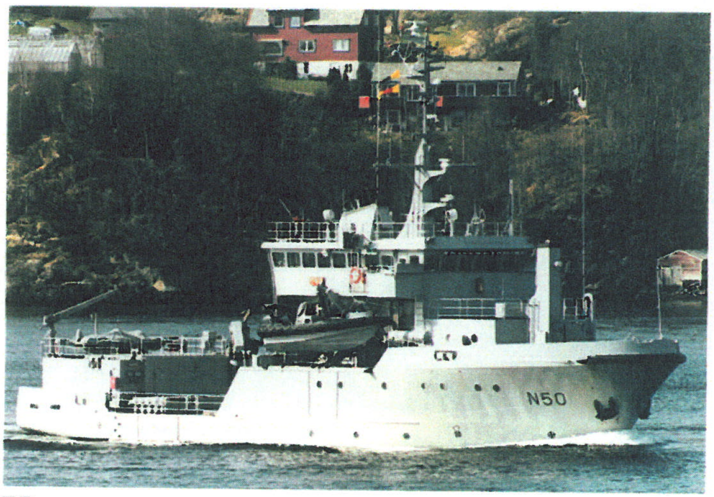

TYR *4/2002, P Froud* / 0529134

SURVEY AND RESEARCH SHIPS

1 RESEARCH SHIP (AGEH)

Name	*Builders*	*Launched*	*Commissioned*
MARJATA	Tangern Verft A/S	18 Dec 1992	July 1994

Displacement, tons: 7,560 full load
Dimensions, feet (metres): 267.4 × 130.9 × 19.7 *(81.5 × 39.9 × 6)*
Main machinery: Diesel-electric; 2 MTU Siemens 16V 396 TE diesels; 7,072 hp(m) *(5.2 MW)*; 2 Dresser Rand/Siemens gas-turbine generators; 9,792 hp(m) *(7.2 MW)*; 2 Siemens motors; 8,160 hp(m) *(6 MW)*; 2 Schottel 3030 thrusters. 1 Siemens motor; 2,720 hp(m); *(2 MW)*; 1 Schottel thruster (forward)
Speed, knots: 15
Complement: 14 plus 31 scientists
Helicopters: Platform for one medium

Comment: Ordered in February 1992 from Langsten Slip og Batbyggeri to replace the old ship of the same name. Called Project Minerva. Design developed by Ariel A/S, Horten. The three main superstructure-mounted cupolas contain ELINT and SIGINT equipment. Hull-reinforced to allow operations in fringe ice. Equipment includes Sperry radars, Elac sonars, Siemens TV surveillance, and a fully equipped helicopter flight deck. The unconventional hull which gives the ship an extraordinary length to beam ratio of 2:1 is said to give great stability and dynamic qualities. White hull and superstructure.

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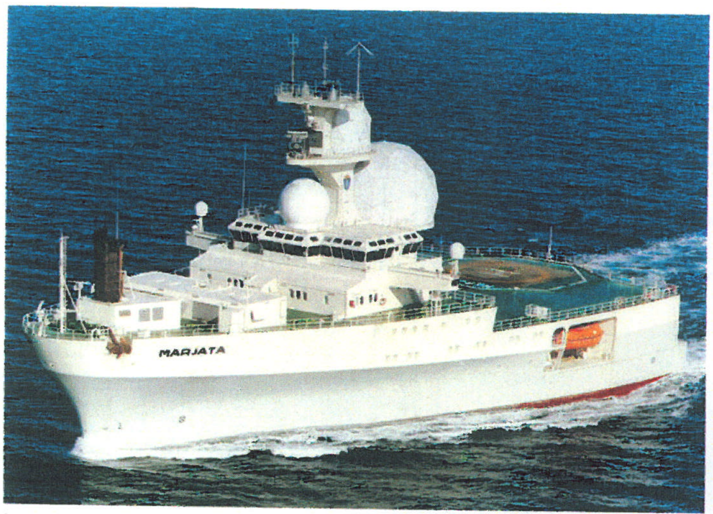

MARJATA *2000, Royal Norwegian Navy* / 0105173

7 SURVEY SHIPS (AGS)

Name	*Displacement tons*	*Launched*	*Officers*	*Crew*
OLJEVERN 01-04	200	1978	2	6
GEOFJORD	364	1958	2	6
SJØ TROLL	80	1976	-	-
JOHAN HJORT	2,000	1990	-	-

Comment: Under control of Ministry of Environment based at Stavanger. *Oljevern 01* and *03* have red hulls and work for the Pollution Control Authority.

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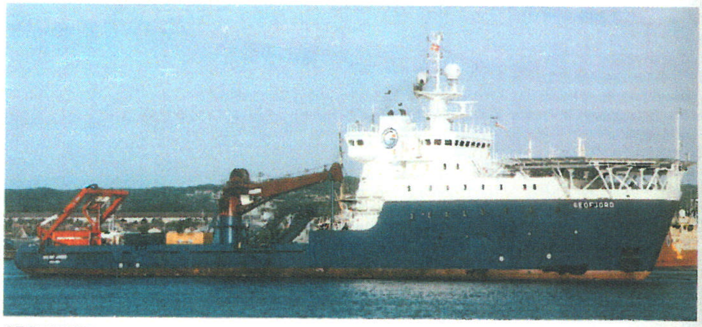

GEOFJORD *5/2002, L-G Nilsson* / 0528972

TRAINING SHIPS

2 TRAINING SHIPS (AXL)

Name	*No*	*Builders*	*Commissioned*
HESSA (ex-*Hitra*, ex-*Marsteinen*)	P 358	Fjellstrand, Omastrand	Jan 1978
VIGRA (ex-*Kvarven*)	P 359	Fjellstrand, Omastrand	July 1978

Displacement, tons: 39 full load
Dimensions, feet (metres): 77 × 16.4 × 3.5 *(23.5 × 5 × 1.1)*
Main machinery: 2 GM 12V-71 diesels; 1,800 hp *(1.34 MW)*; 2 shafts
Speed, knots: 20
Complement: 5 plus 13 trainees
Guns: 1—12.7 mm Browning MG.
Radars: Navigation: Racal Decca; I-band.

Comment: The vessels are designed for training students at the Royal Norwegian Naval Academy in navigation, manoeuvring and seamanship. All-welded aluminium hulls. Also equipped with an open bridge and a blind pilotage position below deck. 18 berths.

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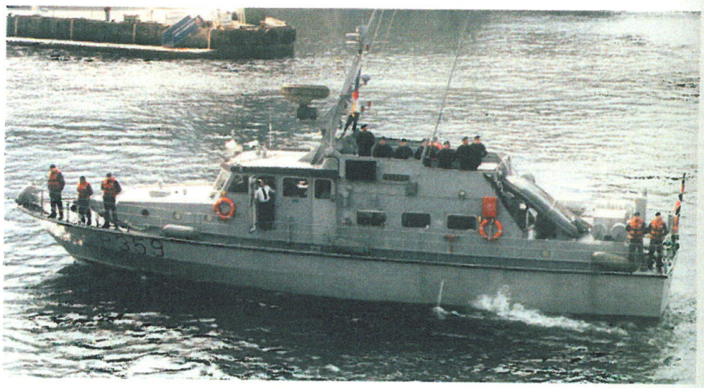

VIGRA *4/2002, P Froud* / 0529133

AUXILIARIES

1 DEPOT SHIP (ASH/AGP)

Name	*No*	*Builders*	*Commissioned*
HORTEN	A 530	A/S Horten Verft	Apr 1978

Displacement, tons: 2,530 full load
Dimensions, feet (metres): 287 × 42.6 × 16.4 *(87.5 × 13 × 5)*
Main machinery: 2 Wichmann 7AX diesels; 4,200 hp(m) *(3.1 MW)*; 2 shafts; bow thruster
Speed, knots: 16.5
Complement: 86
Guns: 2 Bofors 40 mm/70.
Radars: Navigation: 2 Decca; I-band.
Helicopters: Platform only.

Comment: Contract signed 30 March 1976. Laid down 28 January 1977; launched 12 August 1977. Serves both submarines and fast attack craft. Quarters for 45 extra and can cater for 190 extra.

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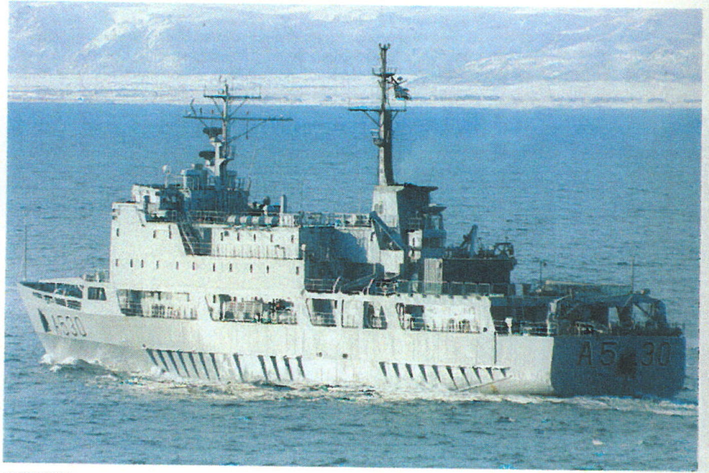

HORTEN *3/2001, A Sharma* / 0130036

1 SUPPLY AND RESCUE VESSEL (AKS/ATA)

Name	*No*	*Builders*	*Commissioned*
VALKYRIEN	A 535	Ulstein Hatlo	1981

Displacement, tons: 3,000 full load
Dimensions, feet (metres): 223.1 × 47.6 × 16.4 *(68 × 14.5 × 5)*
Main machinery: Diesel-electric; 4 diesels; 10,560 hp(m) *(7.76 MW)* sustained; 2 motors; 3.14 MW; 2 shafts; 2 bow thrusters; 1,600 hp(m) *(1.18 MW)*; 1 stern thruster; 800 hp(m) *(588 kW)*
Speed, knots: 16
Complement: 13
Radars: Navigation: 2 Furuno; H/I-band.
Comment: Tug/supply ship acquired in 1994 for supply and SAR duties. Bollard pull 128 tons. Can carry a 700 ton deck load. Oil recovery equipment is also carried.

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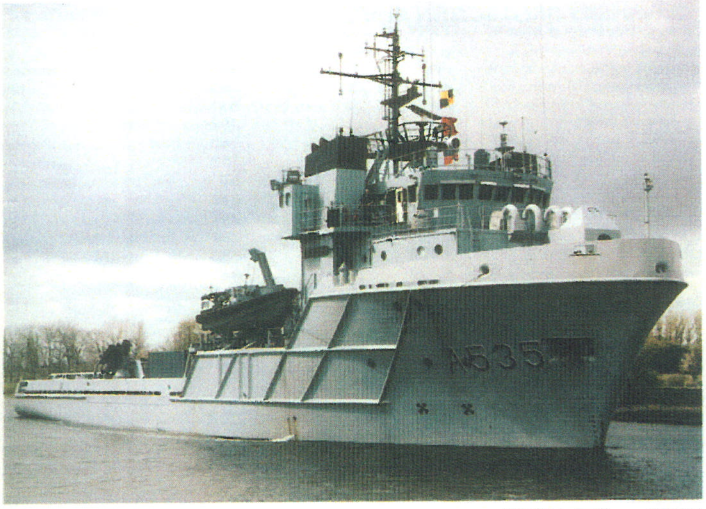

VALKYRIEN *4/2002, **L-G Nilsson*** / 0528971

9 COASTAL VESSELS (YPT/YDT)

Notes: Due to re-organisation of the coastal vessels, the naval districts no longer operate many of the vessels previously assigned. The following remain in service and are prefaced by two letters as follows: HT (torpedo recovery), HM (multirole), HS (tugs), HD (diving), HP (personnel), HR (rescue). *Hitra* (HP 15) is also used for training cruises. All are less than 300 tons displacement.

Name	*No*	*Speed, knots*	*Commissioned*	*Role*
VIKEN	HD 2	12	1984	Cargo (4 tons)/Passengers (40) Diving vessel
TORPEN	HM 3	12	1977	Cargo (100 tons)/Passengers (15)
WISTING	HM 5	9	1968	Passengers (75)
KJEØY	HM 7	10	1993	Training ship/Passengers (30)
RAMNES	HP 5	12	1994	Cargo (120 tons)/Passengers (35)
HITRA	HP 15	—	—	Passengers (30)
KVARVEN	HS 1	11	1987	Tug/Cargo (3 tons)/Passengers (12)
BOGØY	HS 2	10.5	1993	Tug/Cargo (4 tons)
VERNØY	HT 1	14	1978	TRV/Cargo (19.5 tons)

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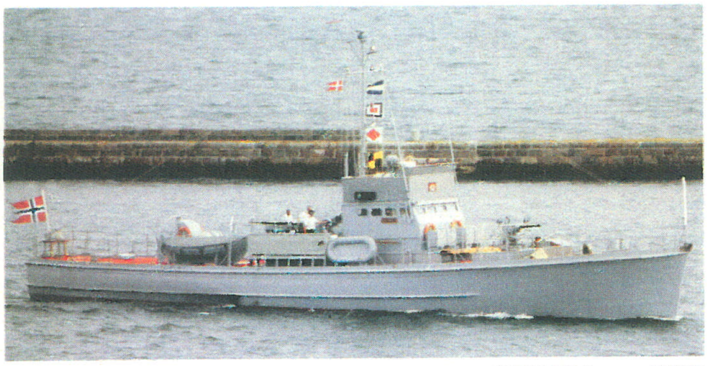
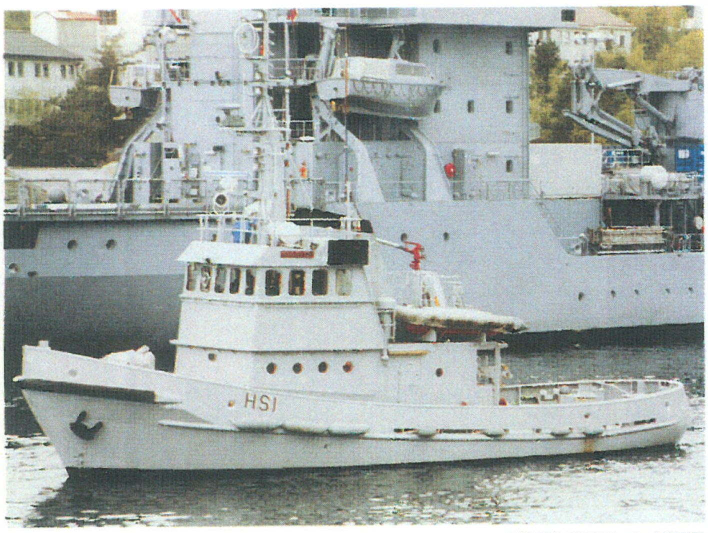


HITRA *8/1996, **Erik Laursen*** / 0081339



KVARVEN *5/2000, **H M Steele*** / 0105176

ROYAL YACHTS

1 ROYAL YACHT (YAC)

Name	*No*	*Builders*	*Commissioned*
NORGE (ex-*Philante*)	A 533	Camper & Nicholson's Ltd, Southampton	1937

Displacement, tons: 1,786 full load
Dimensions, feet (metres): 263 × 38 × 15.2 *(80.2 × 11.6 × 4.6)*
Main machinery: 2 Bergen KRMB-8 diesels; 4,850 hp(m) *(3.6 MW)* sustained; 2 shafts
Speed, knots: 17
Complement: 50 (18 officers)
Radars: Navigation: 2 Decca; I-band.

Comment: Built to the order of the late T O M Sopwith as an escort and store vessel for the yachts *Endeavour I* and *Endeavour II*. Launched on 17 February 1937. Served in the Royal Navy as an anti-submarine escort during the Second World War, after which she was purchased by the Norwegian people for King Haakon and reconditioned as a Royal Yacht at Southampton. Can accommodate about 50 people in addition to crew. Repaired after serious fire on 7 March 1985 when the ship was fitted with a bow-thruster.

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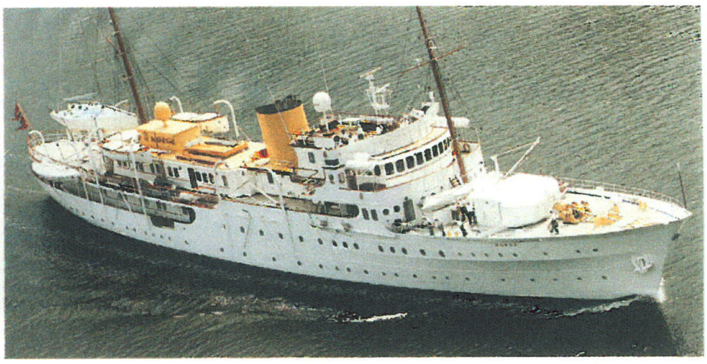

NORGE *8/1999, **Michael Nitz*** / 0081352

COAST GUARD (KYSTVAKT)

3 NORDKAPP CLASS (WPSOH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
NORDKAPP	W 320	Bergens Mek Verksteder	2 Apr 1980	25 Apr 1981
SENJA	W 321	Horten Verft	16 Mar 1980	6 Mar 1981
ANDENES	W 322	Haugesund Mek Verksted	21 Mar 1981	30 Jan 1982

Displacement, tons: 3,240 full load
Dimensions, feet (metres): 346 × 47.9 × 16.1 *(105.5 × 14.6 × 4.9)*
Main machinery: 4 Wichmann 9AXAG diesels; 16,163 hp(m) *(11.9 MW)*; 2 shafts
Speed, knots: 23. **Range, miles:** 7,500 at 15 kt
Complement: 52 (6 aircrew)

Missiles: SSM: Fitted for 6 Kongsberg Penguin II but not embarked.
Guns: 1 Bofors 57 mm/70; 200 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg.
4 Rheinmetall 20 mm/20; 1,000 rds/min to 2 km.
Torpedoes: 6—324 mm US Mk 32 (2 triple) tubes. Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg. Mountings only in peacetime.
Depth charges: 1 rack.
Countermeasures: Decoys: 2 chaff launchers.
Combat data systems: Navkis or EDO (after modernisation). SATCOM can be carried.
Weapons control: THORN EMI MEOSS optronic director to be fitted.
Radars: Air/surface search: Plessey AWS 5; E/F-band or DRS Technologies SPS 67(V)3; G-band.
Navigation: 2 Racal Decca 1226; I-band.
Fire control: Philips 9LV 218 Mk 2; J-band.
Sonars: Simrad SS 105; hull-mounted; active search and attack; 14 kHz or SIMRAD SP 270 (after modernisation); hull mounted.

Helicopters: 1 Westland Lynx Mk 86.

Programmes: In November 1977 the Coast Guard budget was cut resulting in a reduction of the building programme from seven to three ships.
Modernisation: The ships are to be upgraded including an optronic director, new hull-mounted sonar, new air search radar and combat data system. W 321 was refitted in 2001 and both other ships were to have been completed by November 2002.
Structure: Ice strengthened. Fitted for firefighting, anti-pollution work, all with two motor cutters and a Gemini-type dinghy. SATCOM fitted for Gulf deployment.
Operational: Bunks for 109. War complement increases to 76.

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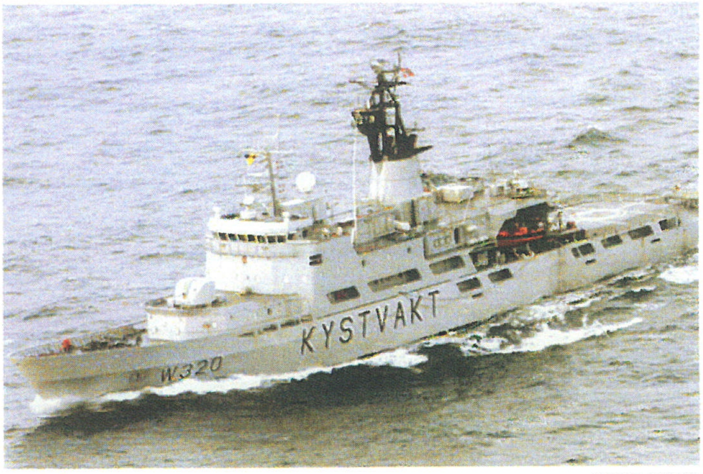

NORDKAPP *2/2000* / 0105178

1 ARCTIC CLASS (WPSOH)

Name	*No*	*Builders*	*Commissioned*
SVALBARD	W 303	Tangen Verft, Krager	5 Jan 2002

Displacement, tons: 6,300 full load
Dimensions, feet (metres): 340.3 × 62.7 × 21.3 *(103.7 × 19.1 × 6.5)*
Main machinery: Diesel electric; 4 diesel generators; 10 MW; 2 azimuth pods
Speed, knots: 17. **Range, miles:** 10,000 at 13 kt
Complement: 50
Guns: 1 Bofors 57 mm/70.
Helicopters: 1 light.

Comment: Project definition completed in 1997 for an ice-reinforced vessel equipped with a helicopter. Built to Det Norske Veritas standards. Contract placed 15 December 1999 with Langsten Slip and Båtbyggeri A/S, Tomrefjord. Ship launched February 2001.

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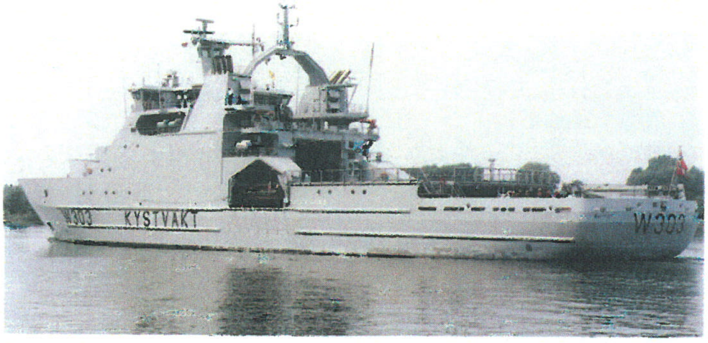

SVALBARD *7/2003*, Freddie Philips* / 0572601

6 CHARTERED SHIPS (WPBO)

Name	*No*	*Tonnage*	*Completion*
EIGUN	W 310	342	1959
ÅLESUND	W 312	1,357	1996
TROMSÖ	W 313	1,970	1997
NORDSJØBAS	W 315	814	1978
MALENE ØSTERVOLD	W 316	1,678	1965
LAFJORD	W 317	814	1978

Comment: *Lafjord* and *Nordsjøbas* chartered in 1980 and *Thorsteinson* in 1999. All armed with one 40 mm/60 gun. Two more ships have been built to Coast Guard requirements and leased for 10 years with an option to buy after five. *Tromsö* operates around north Norway while *Ålesund* is based in the south. Some ships are operated with two crews, changing over every three weeks.

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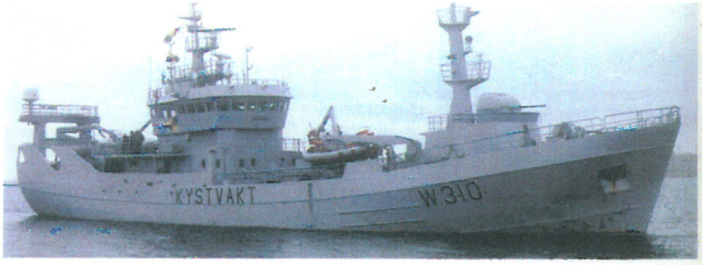

EIGUN *7/2003*, Per Körnefeldt* / 0572602

13 FISHERY PROTECTION SHIPS

Name	*No*	*Tonnage*	*Completion*
TITRAN	KV 1	184	1992
KONGSØY	KV 2	331	1958
STURE GØRAN	KV 3	193	1969
AGDER	KV 5	140	1974
GARSØY	KV 6	195	1988
ÅHAV	KV 7	50	1981
POLARVAKT	KV 21	290	1965
BARENTSHAV	KV 22	318	1957
LOFOTHAV	KV 24	271	1954
SJØVEIEN	KV 25	330	1964
NYSLEPPEN	KV 28	343	1967
PETER JARL	KV 29	421	1965
THORSTEINSON	W 319	272	1960

Comment: An Inshore Patrol Force was established in January 1997. This comprises mostly chartered ships with KV pennant numbers. KV 1-7 are coastal cutters. KV 21-29 are used as fishing gear protection ships.

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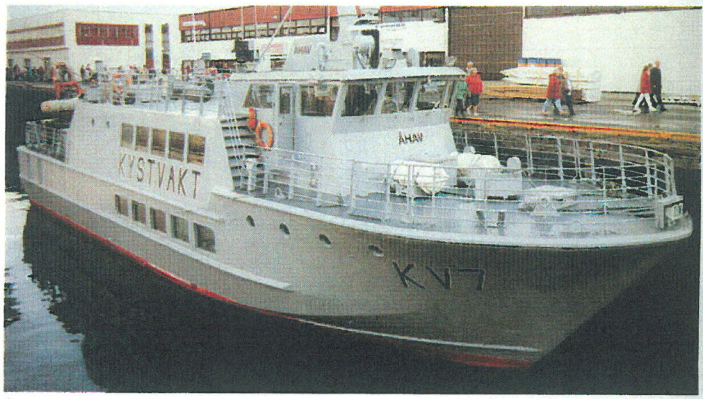

ÅHAV *8/1999, van Ginderen Collection* / 0081357

Oman

Country Overview

The Sultanate of Oman is an independent Middle-East state extending along the south-east coast of the Arabian Peninsula. It is bordered to the south-west by the Republic of Yemen, to the west by Saudi Arabia and to the north-west by the United Arab Emirates which separates a small exclave on the Musandam peninsula, on the south side of the Strait of Hormuz, from the rest of the country. Masirah island and the Khuriya Muriya Islands lie off the south-east coast. With an area of 82,030 square miles, it has a 1,129 n mile coastline with the Indian Ocean and Gulf of Oman. The capital, largest city and principal port is Muscat while there is a further port at Salalah. Territorial seas (12 n miles) are claimed. An EEZ (200 n miles) has also been claimed but its limits have only been partly defined by boundary agreements.

Headquarters Appointments

Commander Royal Navy of Oman:
Rear Admiral (Liwaa Bahry) H H Sayyid Shihab bin Tarik bin Taimur Al Said
Principal Staff Officer:
Commodore (Ameed) Abdullah Khamis Abdullah Al-Raisi
Director General Operations and Plans:
Commodore (Ameed) Abdullah Khamis Abdullah Al-Raisi
Commander Coast Guard:
Captain (Aqeed Bahry) Hamdan bin Marhoon Al Mamary
Commander Royal Yacht Squadron:
Commodore (Ameed) J M Knapp

Bases

Said bin Sultan, Widam A'Sahil (main base, dockyard and shiplift)
Ras Musandam
Muaskar al Murtafa'a (headquarters)

Personnel

(a) 2004: 4,500 officers and men
(b) Voluntary service

CORVETTES

1 PATROL SHIP (FSH/AXL/AGS)

Name	*No*	*Builders*	*Commissioned*
AL MABRUKAH (ex-*Al Said*)	Q 30 (ex-A 1)	Brooke Marine, Lowestoft	1971

Displacement, tons: 900 full load
Dimensions, feet (metres): 203.4 × 35.1 × 9.8 *(62 × 10.7 × 3)*
Main machinery: 2 Paxman Valenta 12CM diesels; 5,000 hp *(3.73 MW)* sustained; 2 shafts
Speed, knots: 12
Complement: 39 (7 officers) plus 32 trainees
Guns: 1 Bofors 40 mm/70. 2 Oerlikon 20 mm A41A.
Countermeasures: Decoys: Wallop Barricade 18-barrelled chaff launcher.
ESM: Racal Cutlass; radar warning.
Radars: Surface search: Racal Decca TM 1226; I-band.
Helicopters: Platform only.

Comment: Built by Brooke Marine, Lowestoft. Launched 7 April 1970 as a yacht for the Sultan of Oman. Carried on board is one Rotork landing craft. Converted to training/patrol ship in 1983 with enlarged helicopter deck, additional accommodation and armament. Re-classified as a corvette and pennant number changed in 1997. Fitted with survey equipment in 2000, as an additional role.

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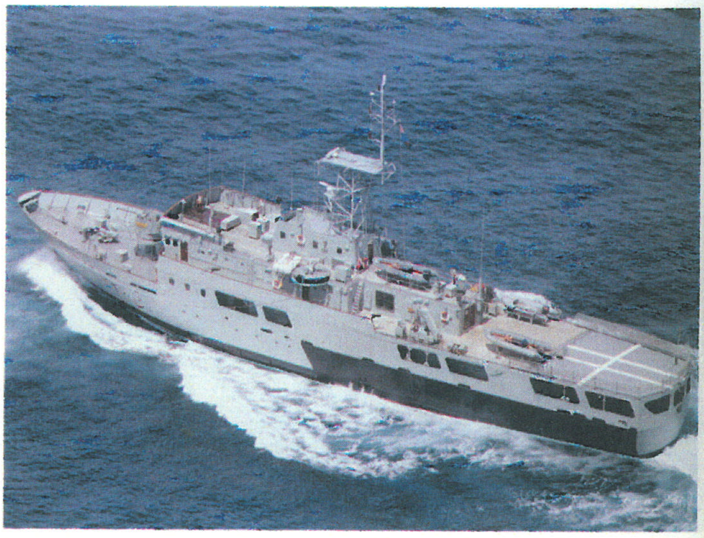


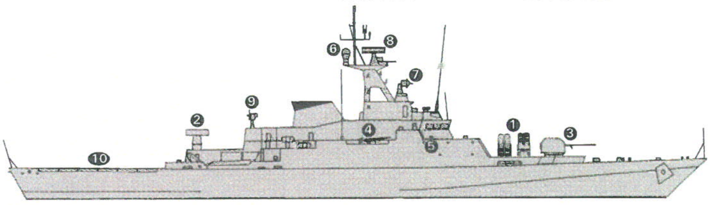
AL MABRUKAH *6/1999, Royal Navy of Oman* / 0081358

2 QAHIR CLASS (FSGMH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
QAHIR AL AMWAJ	Q 31	Vosper Thornycroft, Woolston	21 May 1993	21 Sep 1994	3 Sep 1996
AL MUA'ZZAR	Q 32	Vosper Thornycroft, Woolston	4 Apr 1994	26 Sep 1995	13 Apr 1997

Displacement, tons: 1,450 full load
Dimensions, feet (metres): 274.6 oa; 249.3 wl × 37.7 × 11.8 *(83.7; 76 × 11.5 × 3.6)*
Main machinery: CODAD; 4 Crossley SEMT-Pielstick 16 PA6 V 280 STC; 28,160 hp(m) *(20.7 MW)* sustained; 2 shafts; Kamewa cp props
Speed, knots: 28. **Range, miles:** 4,000 at 10 kt
Complement: 76 (14 officers) plus 3 spare

Missiles: SSM: 8 Aerospatiale MM 40 Block 2 Exocet ❶; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: Thomson-CSF Crotale NG octuple launcher ❷; 16 VT1; command line of sight guidance; radar/IR homing to 13 km *(7 n miles)* at 2.4 Mach; warhead 14 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 Super Rapid ❸; 120 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Oerlikon/Royal Ordnance 20 mm GAM-BO1 ❹.
Torpedoes: 6—324 mm (2 triple) tubes may be fitted in due course.
Countermeasures: Decoys: 2 Barricade 12-barrelled chaff and IR launchers ❺.
ESM: Thomson-CSF DR 3000 ❻; intercept.
Combat data systems: Signaal/Thomson-CSF TACTICOS; Link Y; SATCOM.



QAHIR AL AMWAJ *(Scale 1 : 900), Ian Sturton*

Weapons control: Signaal STING optronic and radar tracker ❼; 2 Signaal optical directors.
Radars: Air/surface search: Signaal MW08 ❽; G-band.
Fire control: Signaal STING ❼; I/J-band.
Thomson-CSF DRBV 51C ❾; J-band (for Crotale).
Navigation: Kelvin Hughes 1007; I-band.
Sonars: Thomson Sintra/BAeSEMA ATAS; towed array; active search; 3 kHz (may be fitted).

Helicopters: Platform for 1 Super Lynx type ❿.

Programmes: Vosper Thornycroft signed the Muheet Project contract on 5 April 1992. First steel cut 23 September 1992. Q 31 accepted on 27 March 1996, and Q 32 on 26 November 1996. Commissioned after operational work up in the UK, and on return to Oman. Names mean Conqueror of the Waves, and The Supported.
Structure: The ship is based on the 'Vigilance' class design with enhanced stealth features. It is possible lightweight torpedo tubes may be fitted. The towed array, if fitted, adds another 8 tons on the stern but does not affect the helicopter deck. RAM (Radar Absorbent Material) is widely used on the superstructure.
Operational: The helicopter platform can support a Super Puma sized aircraft.

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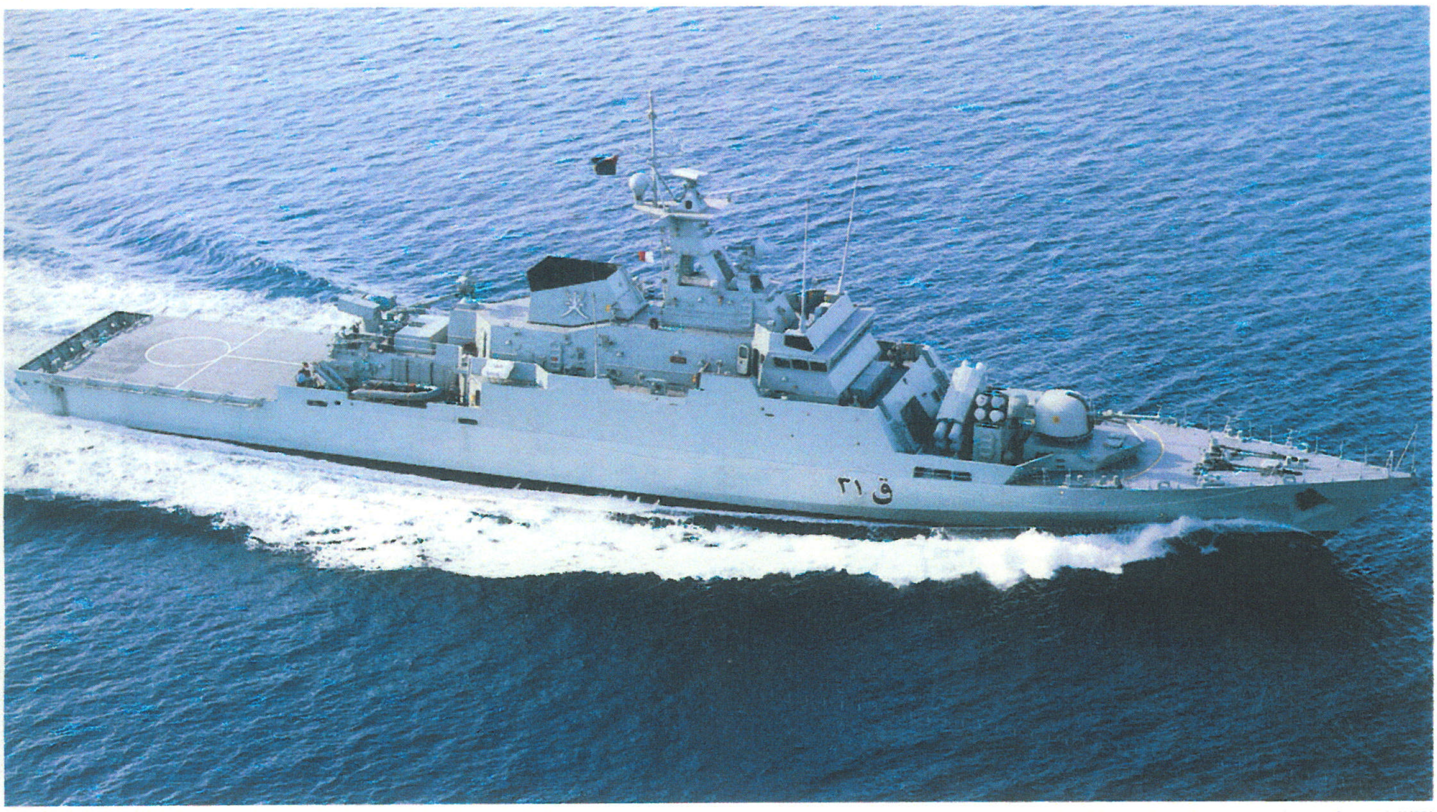

QAHIR AL AMWAJ *6/2001, Royal Navy of Oman* / 0114774

QAHIR AL AMWAJ *10/2001, Craig Hoyle* / 0533224

SHIPBORNE AIRCRAFT

Numbers/Type: 16 GKN Westland Super Lynx.
Operational speed: 120 kt *(222 km/h).*
Service ceiling: 10,000 ft *(3,048 m).*
Range: 320 n miles *(593 km).*
Role/Weapon systems: Contract signed 19 January 2002. Maiden flight of first aircraft on 25 October 2003. Roles likely to include ASW and ASV. To be operated by Air Force.

UPDATED

SUPER LYNX 300 DEMONSTRATOR
6/2001, Agusta-Westland / 0095707

PATROL FORCES

Notes: 'Project Kareef' calls for the design, construction and support of three 80 m OPVs for delivery to the RNO from 2007. Following the issue of an initial statement of requirements in February 2003, a shortlist of 2-3 bidders is to be down-selected with a view to a contract being signed in 2004.

3 AL BUSHRA CLASS (PBO)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
AL BUSHRA	Z 1	CMN, Cherbourg/Wudam Dockyard	10 Nov 1993	3 May 1995	15 June 1995
AL MANSOOR	Z 2	CMN, Cherbourg/Wudam Dockyard	12 Apr 1994	3 May 1995	10 Aug 1995
AL NAJAH	Z 3	CMN, Cherbourg/Wudam Dockyard	27 June 1994	5 Mar 1996	15 Apr 1996

Displacement, tons: 475 full load
Dimensions, feet (metres): 178.6 × 26.2 × 8.9 *(54.5 × 8 × 2.7)*
Main machinery: 2 MTU 16V 538 TB93 diesels; 8,000 hp(m) *(5.88 MW)* sustained; 2 shafts
Speed, knots: 24. **Range, miles:** 2,400 at 15 kt
Complement: 43 (8 officers)

Guns: 1 OTO Melara 76 mm/62 Compact; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Oerlikon/Royal Ordnance 20 mm GAM-BO1. 2—12.7 mm MGs.
Countermeasures: Decoys: Plessey Barricade chaff launcher.
ESM: Thomson-CSF DR 3000; intercept.
Weapons control: CelsiusTech 9LV 207 Mk 3 command system and optronic director.
Radars: Surface search: Kelvin Hughes 1007 ARPA; I-band.

Programmes: Project Mawj order for three, with an option on five more, on 1 September 1993. The ships have had additional weapon systems fitted in Wudam dockyard.
Structure: Same hull design as the French 'P 400' class. 20 mm guns, and countermeasures were not fitted at Cherbourg and are planned to be installed in due course. 76 mm guns were fitted from 1998 from deleted 'Al Waafi' class. The plan to fit torpedoes and sonars has been shelved.
Operational: First pair arrived in Oman on 28 September 1995, last one on 29 June 1996. Pennant numbers have been changed from B to Z.

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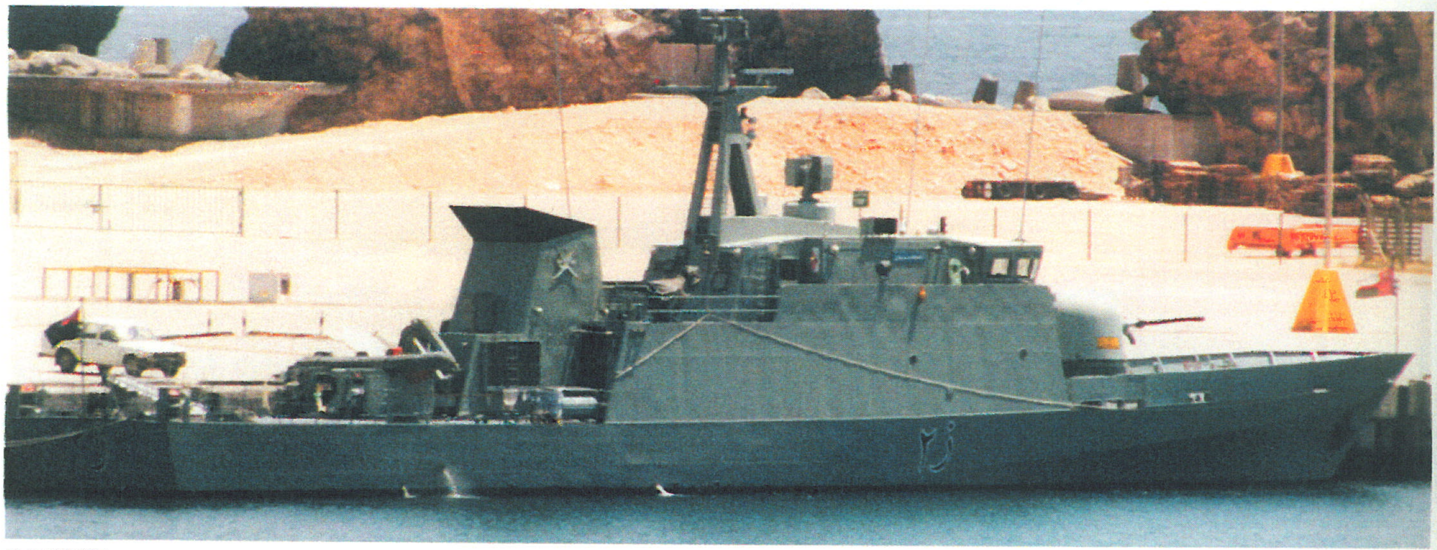


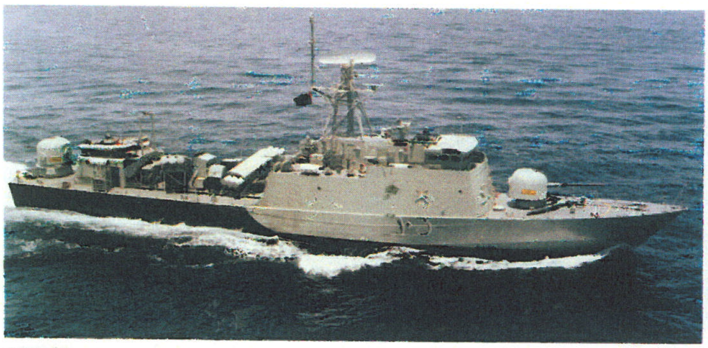
AL MANSOOR
10/2001, A Sharma / 0533303

4 DHOFAR (PROVINCE) CLASS
(FAST ATTACK CRAFT—MISSILE) (PGGF)

Name	*No*	*Builders*	*Launched*	*Commissioned*
DHOFAR	Z 10	Vosper Thornycroft	14 Oct 1981	7 Aug 1982
AL SHARQIYAH	Z 11	Vosper Thornycroft	2 Dec 1982	5 Dec 1983
AL BAT'NAH	Z 12	Vosper Thornycroft	4 Nov 1982	18 Jan 1984
MUSSANDAM	Z 14	Vosper Thornycroft	19 Mar 1988	31 Mar 1989

Displacement, tons: 311 light; 394 full load
Dimensions, feet (metres): 186 × 26.9 × 7.9 *(56.7 × 8.2 × 2.4)*
Main machinery: 4 Paxman Valenta 18CM diesels; 15,000 hp *(11.2 MW)* sustained; 4 shafts; auxiliary propulsion; 2 motors; 200 hp *(149 kW)*
Speed, knots: 38. **Range, miles:** 2,000 at 18 kt
Complement: 45 (5 officers) plus 14 trainees

Missiles: SSM: 8 Aerospatiale MM 40 Exocet; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.

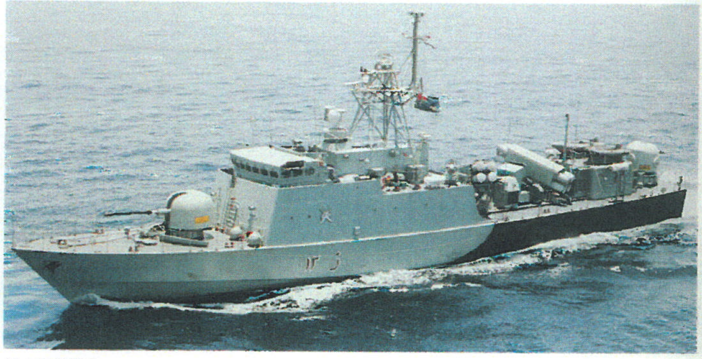


DHOFAR
*6/2003**, *Royal Navy of Oman* / 0567467

Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Breda 40 mm/70 (twin); 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
2—20 mm.
Countermeasures: Decoys: 2 Wallop Barricade fixed triple barrels; for chaff and IR flares.
ESM: Racal Cutlass; radar warning.
ECM: Scorpion; jammer.
Weapons control: Sperry Sea Archer (B 10). Philips 9LV 307 (remainder).
Radars: Air/surface search: Plessey AWS 4 or AWS 6; E/F-band.
Fire control: Philips 9LV 307; I/J-band.
Navigation: KH 1007 ARPA; I-band.

Programmes: First ordered in 1980, two more in January 1981 and fourth in January 1986.
Structure: Similar to Kenyan 'Nyayo' class. Mast structures are different dependent on radars fitted.
Operational: Pennant numbers have been changed from B to Z.

UPDATED



AL BAT'NAH
6/2001, Royal Navy of Oman / 0114772

4 SEEB (VOSPER 25) CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
SEEB	Z 20	Vosper Private, Singapore	15 Mar 1981
SHINAS	Z 21	Vosper Private, Singapore	15 Mar 1981
SADH	Z 22	Vosper Private, Singapore	15 Mar 1981
KHASSAB	Z 23	Vosper Private, Singapore	15 Mar 1981

Displacement, tons: 74 full load
Dimensions, feet (metres): 82.8 × 19 × 5.2 *(25 × 5.8 × 1.6)*
Main machinery: 2 MTU 12V 331 TC92 diesels; 2,660 hp(m) *(1.96 MW)* sustained; 2 shafts
1 Cummins N-855M diesel for slow cruising; 189 hp *(141 kW)* sustained; 1 shaft
Speed, knots: 25; 8 (Cummins diesel). **Range, miles:** 750 at 14 kt
Complement: 13
Guns: 1 Oerlikon 20 mm GAM-BO1. 2—7.62 mm MGs.
Radars: Surface search: Racal Decca 1226; I-band.

Comment: Arrived in Oman on 19 May 1981 having been ordered one month earlier. The craft were built on speculation and completed in 1980. Pennant numbers have been changed from B to Z.

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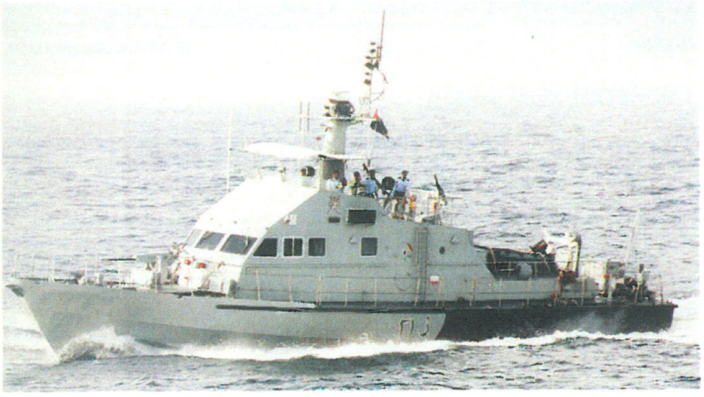

SHINAS *4/2001, Guy Toremans* / 0114771

AMPHIBIOUS FORCES

Notes: (1) There are also some French-built Havas Mk 8 two-man SDVs in service.
(2) Following the issue of a restricted request for tender for a multipurpose high-speed sealift vessel, responses closed in March 2003. It is understood that the broad requirement is for a vessel, built to commercial standards, capable of transporting a company group (150 troops) and its equipment. Folding stern and bow ramps are thought to be required but the vessel is not to be fitted with a flight deck. Powered by two diesel engines, the vessel is to have a cruising speed of about 30 kt and a top speed of over 35 kt. With an unrefuelled range of about 500 n miles, the ship would operate in an intra-theatre sealift role. It is expected that the ship will be armed with self-defence weapons and have a complement of 10-12 people. A 40 m catamaran design is a potential contender.

1 LCU

Name	*No*	*Builders*	*Commissioned*
AL NEEMRAN	A 7 (ex-C 7)	Lewis Offshore, Stornoway	1979

Measurement, tons: 85 dwt
Dimensions, feet (metres): 84 × 24 × 6 *(25.5 × 7.4 × 1.8)*
Main machinery: 2 diesels; 300 hp *(220 kW)*; 2 shafts
Speed, knots: 7/8
Complement: 6
Radars: Navigation: Furuno; I-band.

Comment: Second of class deleted in 1993. Pennant number has been changed from L to A.

UPDATED

1 LANDING SHIP—LOGISTIC (LSLH)

Name	*No*	*Builders*	*Commissioned*
NASR AL BAHR	A 2	Brooke Marine, Lowestoft	6 Feb 1985

Displacement, tons: 2,500 full load
Dimensions, feet (metres): 305 × 50.8 × 8.5 *(93 × 15.5 × 2.6)*
Main machinery: 2 Paxman Valenta 18 CM diesels; 7,500 hp *(5.6 MW)* sustained; 2 shafts; cp props
Speed, knots: 12. **Range, miles:** 5,500 at 15 kt
Complement: 104 (13 officers)
Military lift: 7 MBT or 400 tons cargo; 190 troops; 2 LCVPs
Guns: 2 Breda 40 mm/70 (1 twin). 2 Oerlikon 20 mm GAM-BO1. 2—12.7 mm MGs.
Countermeasures: Decoys: Wallop Barricade double layer chaff launchers.
Weapons control: PEAB 9LV 107 GFCS and CSEE Lynx optical sight.
Radars: Surface search/navigation: 2 Racal Decca 1226; I-band.
Helicopters: Platform for Super Puma.

Comment: Ordered 18 May 1982. Launched 16 May 1984. Similar to Algerian LSLs. Carries one 16 ton crane. Bow and stern ramps. Full naval command facilities. The forward ramp is of two sections measuring length 59 ft (when extended) × 16.5 ft breadth *(18 × 5 m)*, and the single section stern ramp measures 14 × 16.5 ft *(4.3 × 5 m)*. Both hatches can support a 60 ton tank. The tank deck side bulkheads extend 7.5 ft *(2.25 m)* above the upper deck between the forecastle and the forward end of the superstructure, and provides two hatch openings to the tank deck below. Positioned between the hatches is a 2 ton crane with athwartship travel. New engine exhaust system and funnel fitted in 1997. Aft Oerlikon gun removed. Ship is also used as a ratings' training vessel. Pennant number has been changed from L to A.

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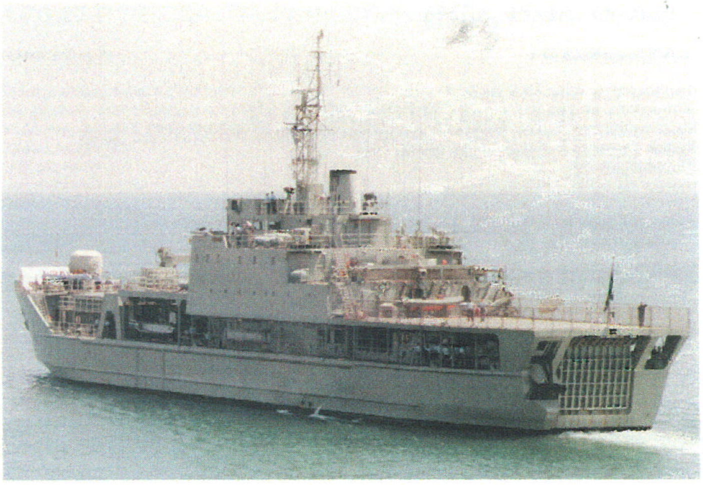

NASR AL BAHR *2/2002, A Sharma* / 0533304

3 LCMs

Name	*No*	*Builders*	*Commissioned*
SABA AL BAHR	A 8 (ex-C 8)	Vosper Private, Singapore	17 Sep 1981
AL DOGHAS	A 9 (ex-C 9)	Vosper Private, Singapore	10 Jan 1983
AL TEMSAH	A 10 (ex-C 10)	Vosper Private, Singapore	12 Feb 1983

Displacement, tons: 230 full load
Dimensions, feet (metres): 108.2 (83.6, C 8) × 24.3 × 4.3 *(33 (25.5) × 7.4 × 1.3)*
Main machinery: 2 Caterpillar 3408TA diesels; 1,880 hp *(1.4 MW)* sustained; 2 shafts
Speed, knots: 8. **Range, miles:** 1,400 at 8 kt
Complement: 11
Military lift: 100 tons
Radars: Navigation: Furuno 701; I-band.

Comment: First one launched 30 June 1981. Second pair of similar but not identical ships, launched 12 November and 15 December 1982. Pennant numbers have been changed from L to A.

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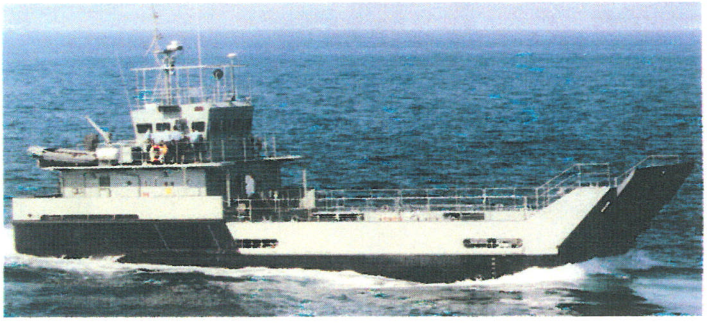

AL TEMSAH *6/2003*, Royal Navy of Oman* / 0567468

AUXILIARIES

Notes: In addition to the listed vessels there are four 12 m Cheverton Work boats (W 41-44) and eight 8 m Work boats (W 4-11).

1 SUPPLY SHIP (AKS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
AL SULTANA	T 1 (ex-A 2, ex-S 2)	Conoship, Groningen	18 May 1975	4 June 1975

Measurement, tons: 1,380 dwt
Dimensions, feet (metres): 215.6 × 35 × 13.5 *(65.7 × 10.7 × 4.2)*
Main machinery: 1 Mirrlees Blackstone diesel; 1,120 hp(m) *(835 kW)*; 1 shaft
Speed, knots: 11
Complement: 20
Radars: Navigation: Racal Decca TM 1226; I-band.

Comment: Major refit in 1992. Has a 1 ton crane. Pennant number changed in 1997 and again in 2002.

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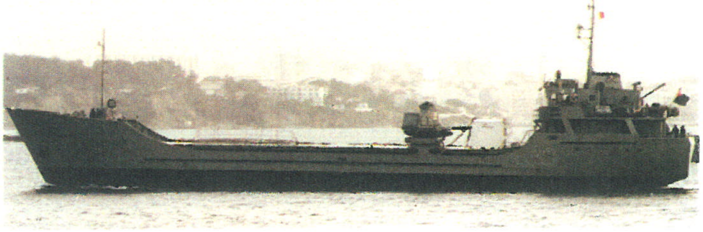

AL SULTANA *4/2002, Schaeffer/Marsan* / 0533305

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1 SURVEY CRAFT (AGSC)

AL RAHMANNIYA M 1

Displacement, tons: 23.6 full load
Dimensions, feet (metres): 50.8 × 13.1 × 4.3 *(15.5 × 4 × 1.3)*
Main machinery: 2 Volvo TMD120A diesels; 604 hp(m) *(444 kW)* sustained; 2 shafts
Speed, knots: 13.5. **Range, miles:** 500 at 12 kt
Complement: 10
Radars: Navigation: Furuno; I-band.

Comment: Built by Watercraft, Shoreham, UK and completed in April 1981. Pennant number changed from H to M.

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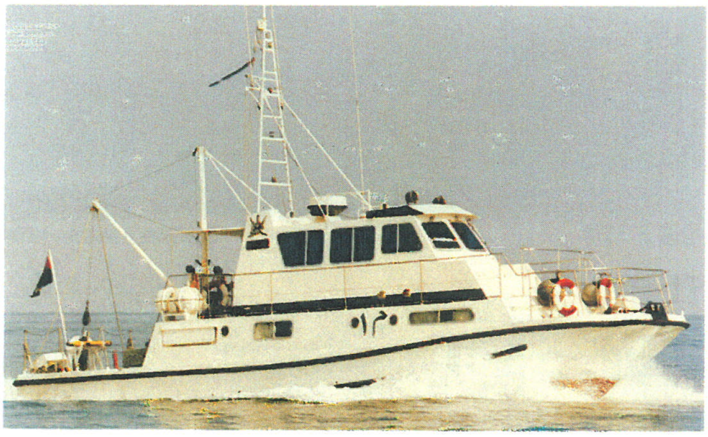

AL RAHMANNIYA *10/1997, Royal Navy of Oman* / 0012860

TRAINING SHIPS

1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Recommissioned*
SHABAB OMAN (ex-*Captain Scott*)	S 1	Herd and Mackenzie, Buckie, Scotland	1979

Displacement, tons: 386 full load
Dimensions, feet (metres): 144.3 × 27.9 × 15.1 *(44 × 8.5 × 4.6)*
Main machinery: 2 Gardner diesels; 460 hp *(343 kW)*; 2 shafts
Speed, knots: 10 (diesels)
Complement: 20 (5 officers) plus 3 officers and 24 trainees

Comment: Topsail schooner built in 1971 and taken over from Dulverton Trust in 1977 used for sail training. Name means Omani Youth.

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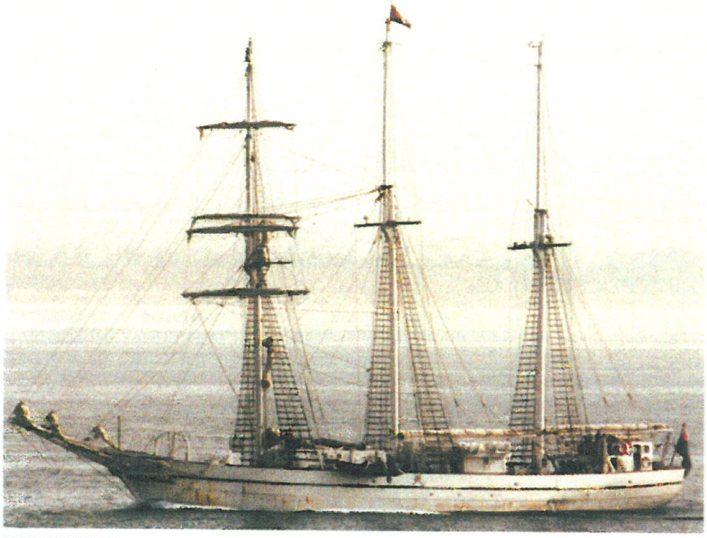

SHABAB OMAN *4/2002, A Sharma* / 0533306

ROYAL YACHTS

Notes: The Royal Yacht Squadron of Oman is a distinct service that is not part of the Royal Navy of Oman. Based at Muscat, the squadron consists of three major units and a number of smaller craft.

1 ROYAL YACHT (YAC)

Name	*No*	*Builders*	*Commissioned*
AL SAID	—	Picchiotti SpA, Viareggio	July 1982

Displacement, tons: 3,800 full load
Dimensions, feet (metres): 340.5 × 62.4 × 15.4 *(103.8 × 19.0 × 4.7)*
Main machinery: 2 GMT A 420.6 H diesels; 8,400 hp(m) *(6.17 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 18
Complement: 156 (16 officers)
Radars: Navigation: Decca TM 1226C; ACS 1230C; I-band.

Comment: Fitted with helicopter deck and fin stabilisers. Carries three Puma C service launches and one Rotork beach landing craft. A variety of small arms carried.

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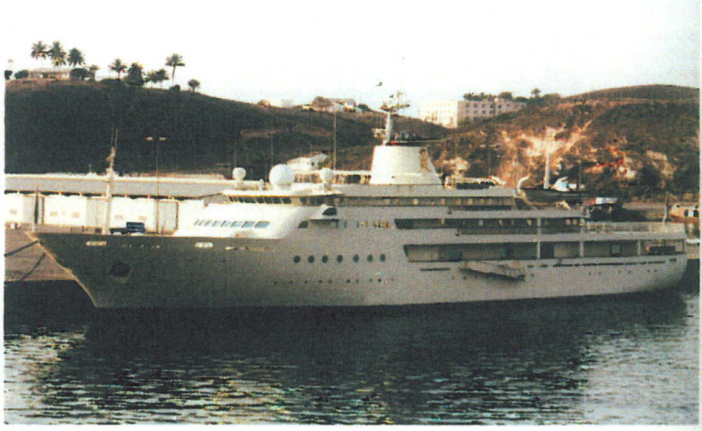

AL SAID *4/2002, A Sharma* / 0533307

1 SUPPORT SHIP (AKSH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
FULK AL SALAMAH (ex-*Ghubat Al Salamah*)	—	Bremer-Vulkan	29 Aug 1986	3 Apr 1987

Measurement, tons: 10,797 grt; 3,239 net
Dimensions, feet (metres): 447.5 × 68.9 × 19.7 *(136.4 × 21 × 6)*
Main machinery: 4 Fincantieri GMT A 420.6 H diesels; 16,800 hp(m) *(12.35 MW)* sustained; 2 shafts; cp props
Speed, knots: 19.5
Military lift: 240 troops
Radars: Navigation: 2 Racal Decca; I-band.
Helicopters: Up to 2 AS 332C Super Pumas.

Comment: Primary role is to support the Royal Yacht on deployments. Secondary roles include government, environmental and training duties. Reported to be fitted with Javelin air-defence missile system.

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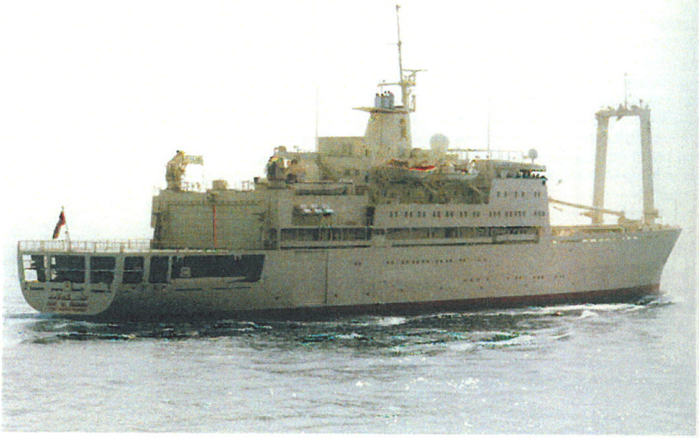

FULK AL SALAMAH *10/2001, A Sharma* / 0126314

1 ROYAL DHOW (YAC)

Name	*No*	*Builders*	*Commissioned*
ZINAT AL BIHAAR	—	—	1988

Displacement, tons: 510 light
Dimensions, feet (metres): 200.2 × 32.2 × 12.8 *(61 × 9.8 × 3.9)*
Main machinery: 2 Siemens motors; 965 hp *(720 kW)*; 2 shafts
Speed, knots: 11.5

Comment: Three-masted wooden sailing vessel built in Oman on traditional lines.

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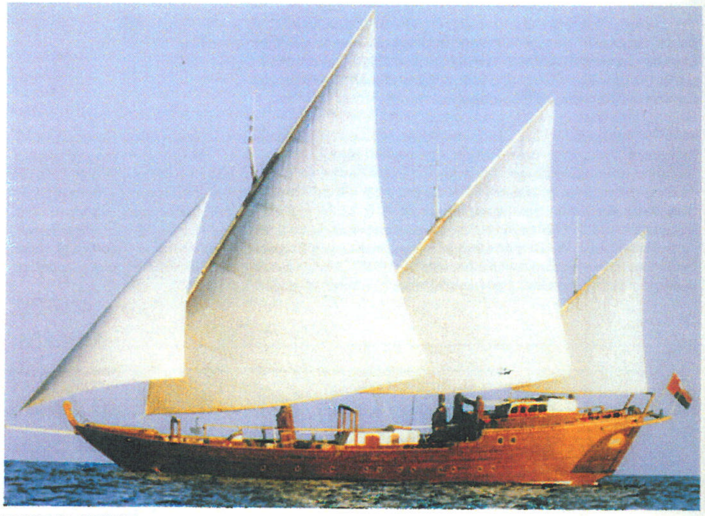
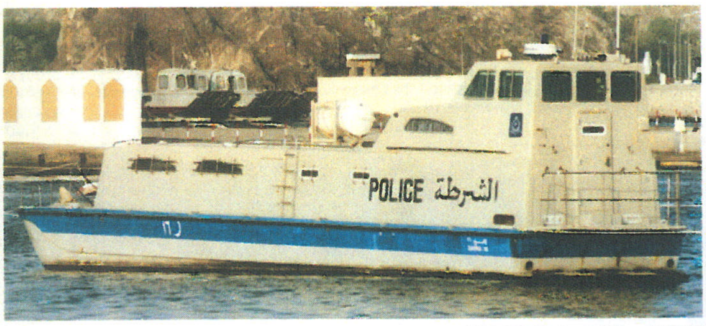


ZINAT AL BIHAAR *2001, Royal Yacht Squadron* / 0114767

POLICE

Notes: (1) In addition to the vessels listed below there are several harbour craft including a Cheverton 8 m work boat *Zahra 24, Zahra 16* and a fireboat pennant number *10*. There are also two Pilatus aircraft for SAR.
(2) 15 FPBs between 11 and 30 m may be ordered in due course. These could be for the Navy if it takes over Fishery Protection duties from the Police.



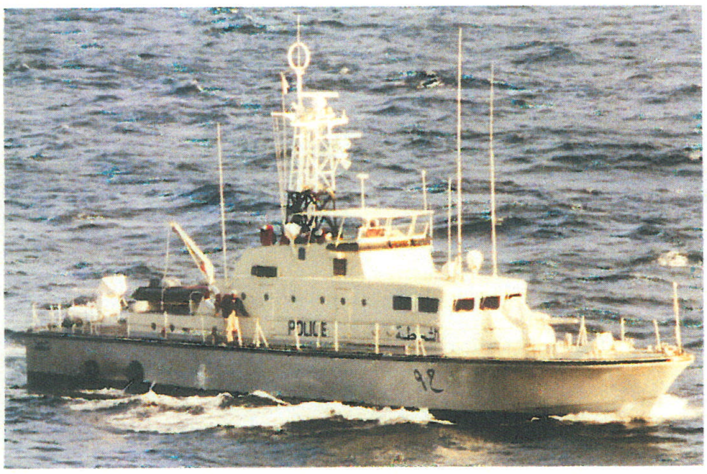
ZAHRA 16 *6/2003*, Hartmut Ehlers /* 0567471

3 CG 29 TYPE (COASTAL PATROL CRAFT) (PB)

HARAS VII H 7 **HARAS IX** H 9 **HARAS X** H 10

Displacement, tons: 84 full load
Dimensions, feet (metres): 94.8 × 17.7 × 4.3 *(28.9 × 5.4 × 1.3)*
Main machinery: 2 MTU 12V 331 TC92 diesels; 2,660 hp(m) *(1.96 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 600 at 15 kt
Complement: 13
Guns: 2 Oerlikon 20 mm GAM-BO1.
Radars: Navigation: Racal Decca 1226; I-band.

Comment: Built by Karlskrona Varvet. Commissioned in 1981-82. GRP Sandwich hulls. ***UPDATED***



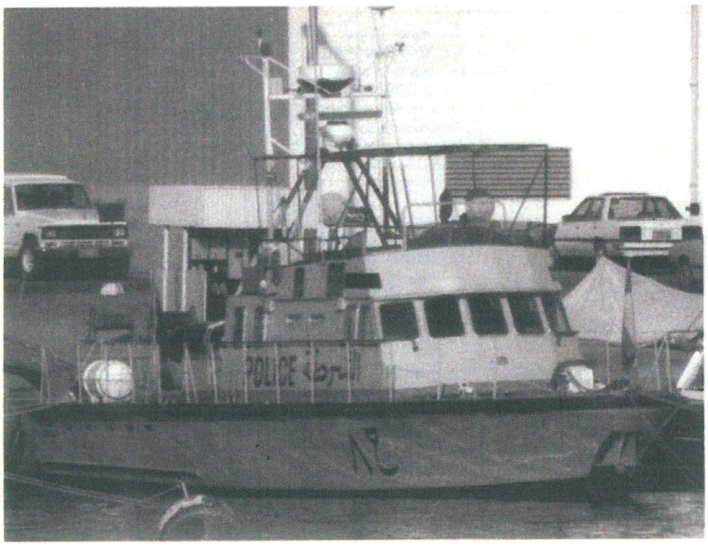
HARAS IX *12/2000 /* 0114776

1 P 1903 TYPE (COASTAL PATROL CRAFT) (PB)

HARAS VIII H 8

Displacement, tons: 32 full load
Dimensions, feet (metres): 63 × 15.7 × 5.2 *(19.2 × 4.8 × 1.6)*
Main machinery: 2 MTU 8V 331 TC92 diesels; 1,770 hp(m) *(1.3 MW)*; 2 shafts
Speed, knots: 30. **Range, miles:** 1,650 at 17 kt
Complement: 10
Guns: 2—12.7 mm MGs.
Radars: Navigation: Racal Decca 1226; I-band.

Comment: Built by Le Comte, Netherlands. Commissioned August 1981. Type 1903 Mk III. ***UPDATED***



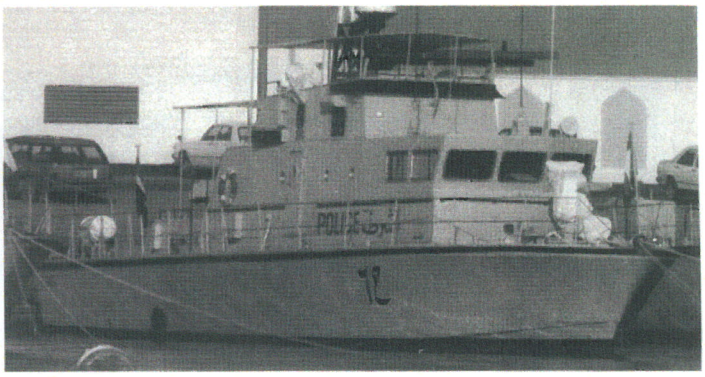
HARAS VIII *10/1992, Hartmut Ehlers*

1 CG 27 TYPE (COASTAL PATROL CRAFT) (PB)

HARAS VI H 6

Displacement, tons: 53 full load
Dimensions, feet (metres): 78.7 × 18 × 6.2 *(24 × 5.5 × 1.9)*
Main machinery: 2 MTU 12V 331 TC92 diesels; 2,660 hp(m) *(1.96 MW)* sustained; 2 shafts
Speed, knots: 25
Complement: 11
Guns: 1 Oerlikon 20 mm GAM-BO1.
Radars: Navigation: Furuno 701; I-band.

Comment: Completed in 1980 by Karlskrona Varvet. GRP hull. ***UPDATED***



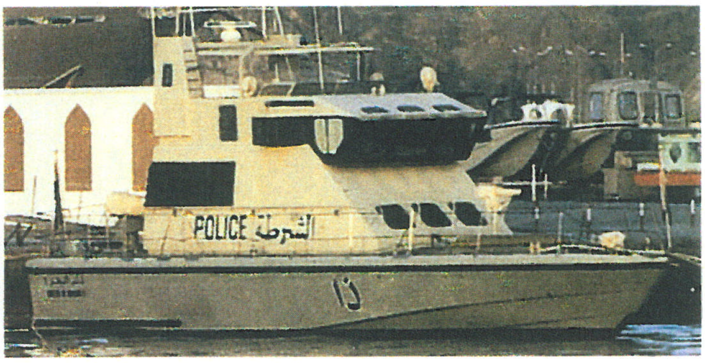
HARAS VI *10/1992, Hartmut Ehlers*

1 P 2000 TYPE (COASTAL PATROL CRAFT) (PB)

DHEEB AL BAHAR I Z 1

Displacement, tons: 80 full load
Dimensions, feet (metres): 68.2 × 19 × 5 *(20.8 × 5.8 × 1.5)*
Main machinery: 2 MTU 12V 396 TB93 diesels; 3,260 hp(m) *(2.4 MW)* sustained; 2 shafts
Speed, knots: 40. **Range, miles:** 423 at 36 kt; 700 at 18 kt
Guns: 1—12.7 mm MG.
Radars: Surface search: Furuno 701; I-band.

Comment: Delivered January 1985 by Watercraft Ltd, Shoreham, UK. GRP hull. Similar to UK 'Archer' class. Carries SATNAV. ***UPDATED***



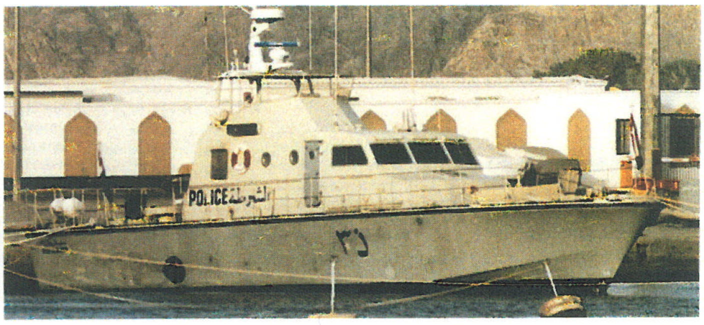
DHEEB AL BAHAR I *5/2001 /* 0114775

2 D 59116 TYPE (COASTAL PATROL CRAFT) (PB)

DHEEB AL BAHAR II Z 2 **DHEEB AL BAHAR III** Z 3

Displacement, tons: 65 full load
Dimensions, feet (metres): 75.5 × 17.1 × 3.9 *(23 × 5.2 × 1.2)*
Main machinery: 2 MTU 12V 396 TB93 diesels; 3,260 hp(m) *(2.4 MW)* sustained; 2 shafts
Speed, knots: 36. **Range, miles:** 420 at 30 kt
Complement: 11
Guns: 1—12.7 mm MG.
Radars: Surface search: Furuno 711-2; Furuno 2400; I-band.

Comment: Built by Yokohama Yacht Co, Japan. Commissioned in 1988. ***UPDATED***



DHEEB AL BAHAR III *6/2003*, Hartmut Ehlers /* 0567470

14 RODMAN 58 CLASS (PB)

Displacement, tons: 111 full load
Dimensions, feet (metres): 59.0 × 16.0 × 3.9 *(18.0 × 4.9 × 1.2)*
Main machinery: 2 diesels; 2,000 hp *(1.49 MW)*; 2 waterjets
Speed, knots: 34. **Range, miles:** 450 at 17 kt
Complement: 5
Radars: Navigation: I-band.

Comment: GRP hull. Built in 2002-03 by Rodman, Vigo. ***NEW ENTRY***

5 INSHORE PATROL CRAFT (PBI)

ZAHRA 14 Z 14 **ZAHRA 15** Z 15 **ZAHRA 17** Z 17 **ZAHRA 18** Z 18 **ZAHRA 21** Z 21

Displacement, tons: 16; 18 (*Zahra 18* and *21*) full load
Dimensions, feet (metres): 45.6 × 14.1 × 4.6 *(13.9 × 4.3 × 1.4)*
52.5 × 13.8 × 7.5 *(16 × 4.2 × 2.3)* (*Zahra 18* and *21*)
Main machinery: 2 Cummins VTA-903M diesels; 643 hp *(480 kW)*; 2 shafts
Speed, knots: 36. **Range, miles:** 510 at 22 kt
Complement: 5-6
Guns: 1 or 2—7.62 mm MGs.
Radars: Navigation: Decca 101; I-band.

Comment: *Zahra 14, 15* and *17* built by Watercraft, Shoreham, UK and completed in 1981. *Zahra 21* completed by Emsworth SB in 1987 to a slightly different design. *Zahra 18* built by Lecomte in 1987.

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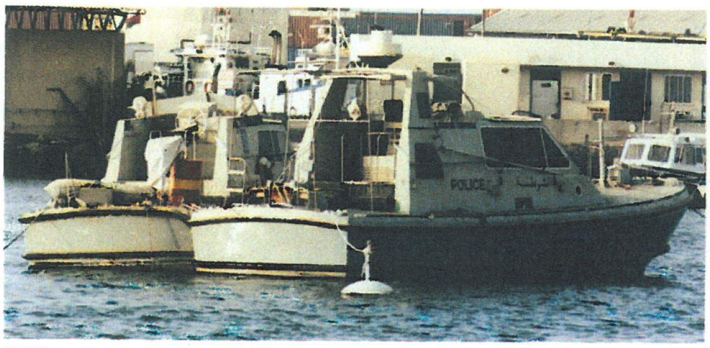

ZAHRA 17 (alongside Zahra 14) *6/2003*, Hartmut Ehlers* / 0567472

1 DIVING CRAFT (YDT)

ZAHRA 27 Z 27

Displacement, tons: 13 full load
Dimensions, feet (metres): 59 × 12.4 × 3.6 *(18 × 3.8 × 1.1)*
Main machinery: 2 Volvo Penta AQD70D diesels; 430 hp(m) *(316 kW)* sustained; 2 shafts
Speed, knots: 20
Complement: 4
Guns: 2—7.62 mm MGs.

Comment: Rotork Type, the last of several logistic support craft, delivered in 1981 and now used as a diving boat. Similar craft used by the Navy.

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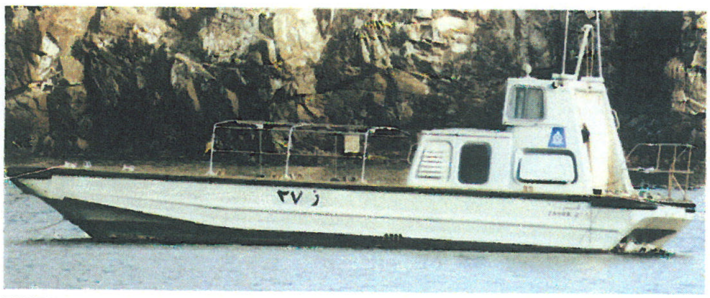

ZAHRA 27 *6/2003*, Hartmut Ehlers* / 0567469

5 VOSPER 75 ft TYPE (COASTAL PATROL CRAFT) (PB)

HARAS I-V H 1-5

Displacement, tons: 50 full load
Dimensions, feet (metres): 75 × 20 × 5.9 *(22.9 × 6.1 × 1.8)*
Main machinery: 2 Caterpillar D 348 diesels; 1,450 hp *(1.08 MW)* sustained; 2 shafts
Speed, knots: 24.5. **Range, miles:** 1,000 at 11 kt
Complement: 11
Guns: 1 Oerlikon 20 mm GAM-BO1.
Radars: Navigation: Decca 101; I-band.

Comment: First four completed 22 December 1975 by Vosper Thornycroft. GRP hulls. *Haras V* commissioned November 1978.

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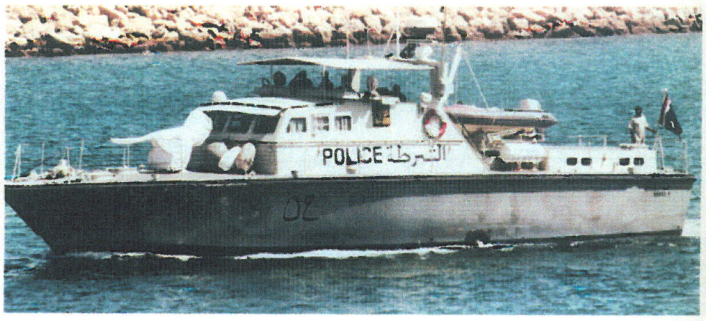


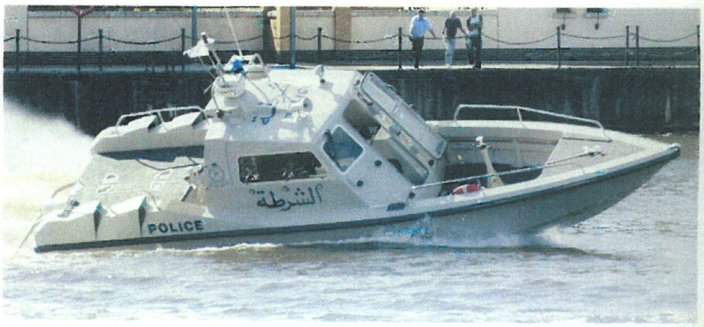
HARAS V *3/2002* / 0533308

20 HALMATIC COUGAR ENFORCER 33 (FAST PATROL CRAFT) (PBF)

Displacement, tons: 5.4 full load
Dimensions, feet (metres): 35.7 × 9.3 × 2.5 *(10.88 × 2.84 × 0.75)*
Main machinery: 2 Yanmar diesels; 2 Hamilton waterjets
Speed, knots: 45. **Range, miles:** 120 at 45 kt

Comment: Based on Cougar 33 deep Vee hull form, first batch of five craft supplied by Halmatic in March 2003 with further 15 delivered by late 2003. To be deployed in coastal patrol and interception role.

NEW ENTRY



ENFORCER 33 *9/2003*, Patrick Allen* / 0560075

Pakistan

Country Overview

The Islamic Republic of Pakistan gained independence in 1947. Situated in south Asia, it has an area of 307,293 square miles and is bordered to the west by Iran, to the north by Afghanistan and to the south by India. It has a 567 n mile coastline with the Arabian Sea. The former province of East Pakistan seceded in 1971 and assumed the name Bangladesh. The status of Jammu and Kashmir is disputed with India. The capital is Islamabad while Karachi is the largest city and principal port. There is a further port at Muhammad bin Qasim. Territorial waters (12 n miles) are claimed. A 200 n mile EEZ has been claimed but the limits have not been defined.

Headquarters Appointments

Chief of the Naval Staff:
Admiral Shahid Karimullah, NI (M), SJ
Vice Chief of Naval Staff:
Vice Admiral Mohammad Haroon, HI (M), T. Bt
Deputy Chief of Naval Staff (Operations):
Rear Admiral Iftikhar Ahmed, SI (M)

Senior Appointments

Commander Karachi:
Rear Admiral Ifran Ahmed, HI (M), SJ
Commander Pakistan Fleet:
Rear Admiral M Afzal Tahir, HI (M)
Flag Officer Sea Training:
Commodore Pervaiz Asghar, SI (M)
Commander North:
Commodore Raja Riaz Hussain
Director General Maritime Security Agency:
Commodore Bakhtiar Mohsin, SI (M), T. Bt

Diplomatic Representation

Naval Adviser in London:
Commodore Imran Ansari, SI (M)
Naval Attaché in Paris:
Captain Adnan Nazir
Defence Attaché in Muscat (Oman):
Captain Furrukh Mehfooz
Naval Attaché in Tehran:
Captain Khalid Saeed
Naval Attaché in Beijing:
Captain Naveed Rizvi
Naval Attaché in Kuala Lumpur:
Captain Muhammad Amjad Zaman
Naval Adviser in New Delhi:
Captain Mateen-ur-Rehman

Personnel

(a) 2004: 25,100 (2,300 officers) including 1,200 Marines and 1,000 (75 officers) seconded to the MSA
(b) Voluntary service
(c) Reserves 5,000

Bases

PNS *Haider* (Naval HQ); PNS *Akram* (Gwadar Naval Base); PNS *Iqbal* (Commando Base); PNS *Mehran* (Karachi Naval Air Station); PNS *Qasim* (Marines HQ/Base), Jinnah Naval Base (Port Ormara)

Prefix to Ships' Names

PNS

Maritime Security Agency

Set up in 1986. Main purpose is to patrol the EEZ in co-operation with the Navy and the Army-manned Coast Guard.

Marines

A Marine Commando Unit was formed at PNS *Iqbal*, Karachi in 1991.

Strength of the Fleet

Type	*Active*	*Building*
Submarines—Patrol	8	1
Submarines—Midget	3	–
Destroyers/Frigates	7	–
Fast Attack Craft—Missile	3	–
Large Patrol Craft	2	–
Minehunters	3	–
Survey Ship	1	–
Tankers	5	–
Maritime Security Agency		
Destroyers	1	–
Large Patrol Craft	4	–
Fast Attack Craft—Gun	2	–

DELETIONS

Frigates

2003	*Shamsher*

Patrol Forces

2003	*Quwwatt*

PENNANT LIST

Submarines

S 131	Hangor
S 132	Shushuk
S 133	Mangro
S 134	Ghazi
S 135	Hashmat
S 136	Hurmat
S 137	Khalid
S 138	Saad
S 139	Hamza (bldg)

Destroyers/Frigates

D 181	Tariq
D 182	Babur
D 183	Khaibar
D 184	Badr
D 185	Tippu Sultan
D 186	Shahjahan
F 262	Zulfiquar

Mine Warfare Forces

M 163	Muhafiz
M 164	Mujahid
M 166	Munsif

Patrol Forces

P 140	Rajshahi
P 157	Larkana
P 1026	Dehshat
P 1029	Jalalat
P 1030	Shujaat
P 1031	Haibat
P 1032	Jurat

Maritime Security Agency

D 156	Nazim
1060	Barkat
1061	Rehmat
1062	Nusrat
1063	Vehdat
1066	Subqat
1068	Rafaqat

Auxiliaries

A 20	Moawin
A 21	Kalmat
A 40	Attock
A 44	Bholu
A 45	Gama
A 47	Nasr
A 49	Gwadar
-	Janbaz
SV 48	Behr Paima

SUBMARINES

2 + 1 KHALID (AGOSTA 90B) CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
KHALID	S 137	DCN, Cherbourg	15 July 1995	18 Dec 1998	6 Sep 1999
SAAD	S 138	DCN, Cherbourg/PN Dockyard, Karachi	2 Dec 1999	24 Aug 2002	12 Dec 2003
HAMZA (ex-*Ghazi*)	S 139	PN Dockyard, Karachi	2000	2005	2006

Displacement, tons: 1,510 surfaced; 1,760 dived (1,960 with MESMA)
Dimensions, feet (metres): 221.7; 252.7 (S 139) × 22.3 × 17.7 *(67.6; 77.0 (S 139) × 6.8 × 5.4)*
Main machinery: Diesel-electric; 2 SEMT-Pielstick 16 PA4 V 185 VG diesels; 3,600 hp(m) *(2.65 MW)*; 2 Jeumont Schneider alternators; 1.7 MW; 1 Jeumont motor; 2,992 hp(m) *(2.2 MW)*; 1 cruising motor; 32 hp(m) *(23 kW)*; 1 shaft
Speed, knots: 12 surfaced; 20 dived
Range, miles: 8,500 at 9 kt snorting; 350 at 3.5 kt dived
Complement: 36 (7 officers)

Missiles: SSM: 4 Aerospatiale Exocet SM 39; inertial cruise; active radar homing to 50 km *(27 n miles)* at 0.9 Mach; warhead 165 kg.
Torpedoes: 4—21 in *(533 mm)* bow tubes. 16 ECAN F17P Mod 2; wire-guided; active/passive homing to 20 km *(10.8 n miles)* at 40 kt; warhead 250 kg. Total of 20 weapons.
Mines: Stonefish.
Countermeasures: ESM: Thomson-CSF DR-3000U; intercept.
Weapons control: Thomson Sintra SUBTICS Mk 2.
Radars: Surface search: KH 1007; I-band.
Sonars: Thomson Sintra TSM 2233 suite; bow cylindrical, passive ranging and intercept, and clip-on towed arrays.

Programmes: A provisional order for a second batch of three more Agostas was reported in September 1992 and this was confirmed on 21 September 1994. First one built in France. Parts for S 138 sent to Pakistan in April 1998 and for S 139 in September 1998.
Structure: The last of the class is to have a 200 kW MESMA liquid oxygen AIP system, thereby extending the hull by 9 m. The MESMA AIP system has a power output of 200 kW which will quadruple dived performance at 4 kt. Testing of the production system started in late 1999. The MESMA system is to be retrofitted in S 137 and S 138 during their next major refits. Hulls also have much improved acoustic quietening and a full integrated sonar suite including flank, intercept and towed arrays. SOPOLEM J 95 search and STS 95 attack periscopes. Sagem integrated navigation system. HLES 80 steel. Diving depth of 320 m *(1,050 ft)*.
Operational: *Khalid* completed 29 April 1999 and sailed for Pakistan in November 1999. Assigned to 5th Submarine Squadron. *Saad* completed its deep-dive test on 19 September 2003. The first submarine to be built in Pakistan, it was commissioned by the President.

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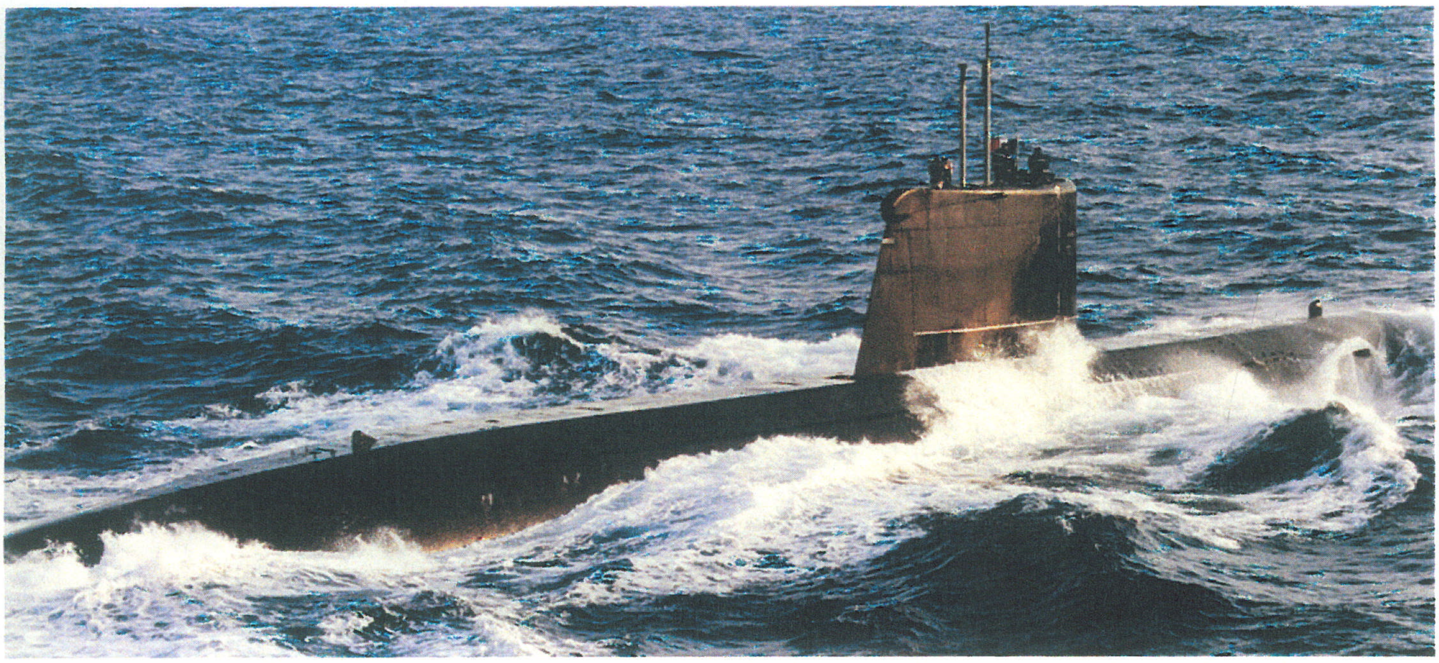


SAAD *9/2003**, ***DCN*** / 0562934

2 HASHMAT (AGOSTA) CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HASHMAT (ex-*Astrant*)	S 135	Dubigeon Normandie, Nantes	15 Sep 1976	14 Dec 1977	17 Feb 1979
HURMAT (ex-*Adventurous*)	S 136	Dubigeon Normandie, Nantes	18 Sep 1977	1 Dec 1978	18 Feb 1980

Displacement, tons: 1,490 surfaced; 1,740 dived
Dimensions, feet (metres): 221.7 × 22.3 × 17.7 *(67.6 × 6.8 × 5.4)*
Main machinery: Diesel-electric; 2 SEMT-Pielstick 16 PA4 V 185 VG diesels; 3,600 hp(m) *(2.65 MW)*; 2 Jeumont Schneider alternators; 1.7 MW; 1 motor; 4,600 hp(m) *(3.4 MW)*; 1 cruising motor; 32 hp(m) *(23 kW)*; 1 shaft
Speed, knots: 12 surfaced; 20 dived
Range, miles: 8,500 at 9 kt snorting; 350 at 3.5 kt dived
Complement: 59 (8 officers)

Missiles: SSM: McDonnell Douglas Sub Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
Torpedoes: 4—21 in *(533 mm)* bow tubes. ECAN F17P; wire-guided; active/passive homing to 20 km *(10.8 n miles)* at 40 kt; warhead 250 kg; water ram discharge gear. E14, E15 and L3 torpedoes are also available. Total of 20 torpedoes and missiles.
Mines: Stonefish.
Countermeasures: ESM: ARUD; intercept and warning.
Radars: Surface search: Thomson-CSF DRUA 33; I-band.
Sonars: Thomson Sintra TSM 2233D; passive search; medium frequency.
Thomson Sintra DUUA 2B; active/passive search and attack; 8 kHz active.
Thomson Sintra TSM 2933D towed array; passive; very low frequency.

Programmes: Purchased from France in mid-1978 after United Nations' ban on arms sales to South Africa. *Hashmat* arrived Karachi 31 October 1979, *Hurmat* arrived 11 August 1980.
Structure: Diving depth, 300 m *(985 ft)*. Both were modified to fire Harpoon in 1985 but may have had to acquire the missiles through a third party.
Operational: Assigned to 5th Submarine Squadron.

VERIFIED

HURMAT *6/1998* / 0052677

4 HANGOR (DAPHNE) CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HANGOR	S 131	Arsenal de Brest	1 Dec 1967	28 June 1969	12 Jan 1970
SHUSHUK	S 132	CN Ciotat, Le Trait	1 Dec 1967	30 July 1969	12 Jan 1970
MANGRO	S 133	CN Ciotat, Le Trait	8 July 1968	7 Feb 1970	8 Aug 1970
GHAZI (ex-*Cachalote*)	S 134	Dubigeon, Normandie, Nantes	12 May 1967	23 Sep 1968	1 Oct 1969

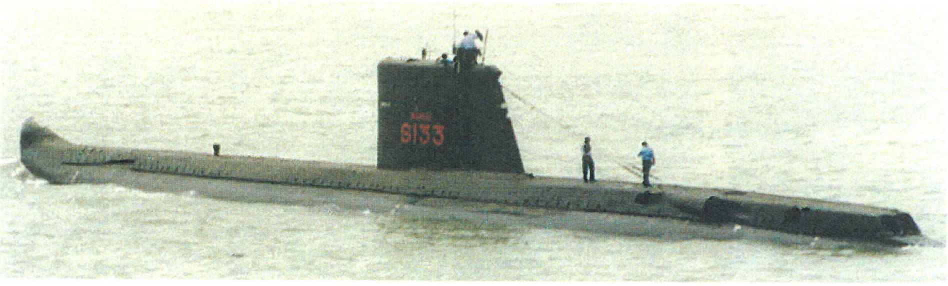
Displacement, tons: 700 standard; 869 surfaced; 1,043 dived
Dimensions, feet (metres): 189.6 × 22.3 × 15.1 *(57.8 × 6.8 × 4.6)*
Main machinery: Diesel-electric; 2 SEMT-Pielstick 12 PA4 V 185 diesels; 2,450 hp(m) *(1.8 MW)*; 2 Jeumont Schneider alternators; 1.7 MW; 2 motors; 2,600 hp(m) *(1.9 MW)*; 2 shafts

Speed, knots: 13 surfaced; 15.5 dived
Range, miles: 4,500 at 5 kt; 3,000 at 7 kt snorting
Complement: 53 (7 officers)

Missiles: SSM: McDonnell Douglas Sub Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.

Torpedoes: 12—21.7 in *(550 mm)* (8 bow, 4 stern). E14, E15, L3 and Z16 torpedoes are available. Total of 12 weapons, no reloads.
Mines: Stonefish.
Countermeasures: ESM: ARUD; intercept and warning.
Radars: Surface search: Thomson-CSF DRUA 31; I-band.
Sonars: Thomson Sintra TSM 2233D; hull-mounted; passive search; medium frequency.
DUUA 1; active/passive search and attack.

Programmes: The first three were built in France. The Portuguese 'Daphne' class *Cachalote* was bought by Pakistan in December 1975.
Structure: They are broadly similar to the submarines built in France for Portugal and South Africa and the submarines constructed to the Daphne design in Spain, but slightly modified internally. Diving depth 300 m *(985 ft)*. SSM capability added in late 1980s.
Operational: Assigned to 5th Submarine Squadron. Likely to be paid off as replaced by 'Khalid' class. ***VERIFIED***



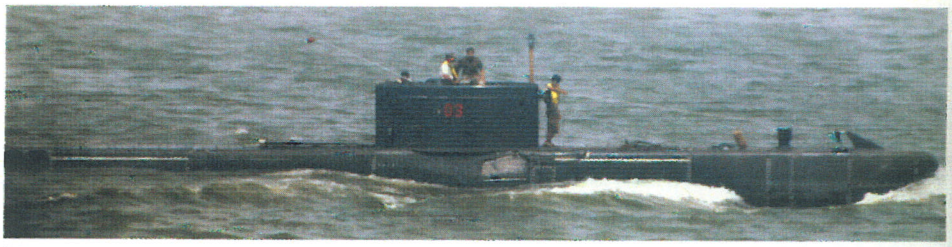
MANGRO
6/1998 / 0052678

3 MIDGET SUBMARINES (SSW)

X 01-03

Displacement, tons: 118 dived
Dimensions, feet (metres): 91.2 × 18.4 *(27.8 × 5.6)*
Speed, knots: 7 dived
Range, miles: 2,200 surfaced; 60 dived
Complement: 8 + 8 swimmers
Torpedoes: 2—21 in *(533 mm)* tubes; 2 AEG SUT; wire-guided; active homing to 12 km *(6.5 n miles)* at 35 kt; passive homing to 28 km *(15 n miles)* at 23 kt; warhead 250 kg plus either two short range active/passive homing torpedoes or two SDVs.
Mines: 12 Mk 414 Limpet type.
Sonars: Hull mounted; active/passive; high frequency.

Comment: MG 110 type built in Pakistan under supervision by Cosmos. These are enlarged SX 756 of Italian Cosmos design. Diving depth of 150 m and can carry eight swimmers with 2 tons of explosives as well as two CF2 FX 60 SDVs (swimmer delivery vehicles). Pilkington Optronics CK 39 periscopes.



X 03
*5/2003** / 0569226

Reported as having a range of 1,000 n miles and an endurance of 20 days. All have been upgraded since 1995 with improved sensors and weapons. However, reports that *X 01* has been equipped with Harpoon are not considered likely. All are active.

UPDATED

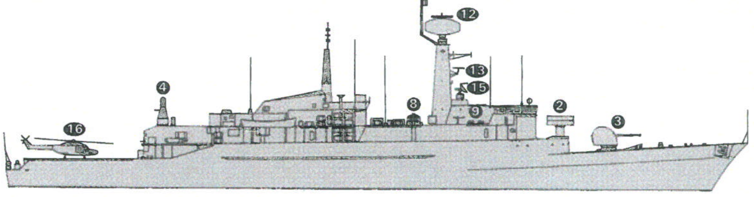
FRIGATES

Notes: A Memorandum of Understanding (MoU) to procure frigates from China is expected. Up to four ships, probably of the 'Jiangwei II' class, are required and some or all of them are likely to be built in Pakistan. Delivery of the ships, initially to replace the 'Leander' class, will probably start in 2008.

6 TARIQ (AMAZON) CLASS (TYPE 21) (FFHM/FFGH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*Recommissioned*
TARIQ (ex-*Ambuscade*)	D 181 (ex-F 172)	Yarrow Shipbuilders, Glasgow	1 Sep 1971	18 Jan 1973	5 Sep 1975	28 July 1993
BABUR (ex-*Amazon*)	D 182 (ex-F 169)	Vosper Thornycroft, Woolston	6 Nov 1969	26 Apr 1971	11 May 1974	30 Sep 1993
KHAIBAR (ex-*Arrow*)	D 183 (ex-F 173)	Yarrow Shipbuilders, Glasgow	28 Sep 1972	5 Feb 1974	29 July 1976	1 Mar 1994
BADR (ex-*Alacrity*)	D 184 (ex-F 174)	Yarrow Shipbuilders, Glasgow	5 Mar 1973	18 Sep 1974	2 July 1977	1 Mar 1994
TIPPU SULTAN (ex-*Avenger*)	D 185 (ex-F 185)	Yarrow Shipbuilders, Glasgow	30 Oct 1974	20 Nov 1975	19 July 1978	23 Sep 1994
SHAHJAHAN (ex-*Active*)	D 186 (ex-F 171)	Vosper Thornycroft, Woolston	23 July 1971	23 Nov 1972	17 June 1977	23 Sep 1994

Displacement, tons: 3,100 standard; 3,700 full load
Dimensions, feet (metres): 384 oa; 360 wl × 41.7 × 19.5 (screws) *(117; 109.7 × 12.7 × 5.9)*
Main machinery: COGOG; 2 RR Olympus TM3B gas turbines; 50,000 hp *(37.3 MW)* sustained; 2 RR Tyne RM1C gas turbines (cruising); 9,900 hp *(7.4 MW)* sustained; 2 shafts; cp props
Speed, knots: 30; 18 on Tynes
Range, miles: 4,000 at 17 kt; 1,200 at 30 kt
Complement: 175 (13 officers) (accommodation for 192)



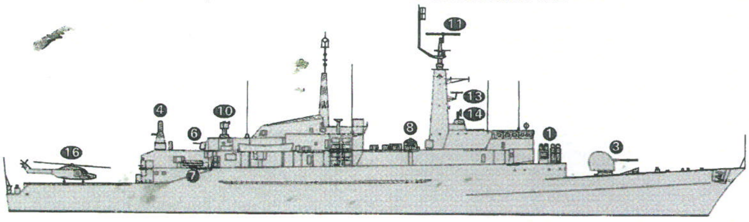
TARIQ
(Scale 1 : 1,200), Ian Sturton / 0572527

Missiles: SSM: 4 McDonnell Douglas Harpoon 1C ❶ fitted in D 186, D 184 and D 182.
SAM: China LY 60N sextuple launchers ❷ semi-active radar homing to 13 km *(7 n miles)* at 2.5 Mach; warhead 33 kg (D 185, D 181 and D 183).
Guns: 1 Vickers 4.5 in *(114 mm)*/55 Mk 8 ❸; 25 rds/min to 22 km *(11.9 n miles)* anti-surface; 6 km *(3.3 n miles)* anti-aircraft; weight of shell 21 kg.
Hughes 20 mm Vulcan Phalanx Mk 15 ❹; 3,000 rds/min to 1.5 km (D 181, D 183, D 184 and D 186).
2 MSI DS 30B 30 mm/75 ❻ (D 182, D 185 and D 186).
Torpedoes: 6—324 mm Plessey STWS Mk 2 (2 triple) tubes ❼ (D 184 and D 186); others fitted with 2 Bofors Type 43X2 single launchers for Swedish Type 45 torpedoes.
Countermeasures: Decoys: Graseby Type 182; towed torpedo decoy.
2 Vickers Corvus 8-tubed trainable launchers ❽ Mk 36 SRBOC ❾ (D 185, D 181, D 183 and D 182).
ESM: Thomson-CSF DR 3000S; intercept.

Combat data systems: CAAIS combat data system with Ferranti FM 1600B computers (D 186 and D 184). CelsiusTech 9LV Mk 3 including Link Y (in remainder).
Weapons control: Ferranti WSA-4 digital fire-control system. CSEE Najir Mk 2 optronic director ❿ (D 182, D 185 and D 186).
Radars: Air/surface search: Marconi Type 992R ⓫; E/F-band (D 182, D 184 and D 186). Signaal DA08 ⓬; F-band (D 181, D 183 and D 185).
Surface search: Kelvin Hughes Type 1007 ⓭ or Type 1006 (D 184 and D 186); I-band.
Fire control: 1 Selenia Type 912 (RTN 10X) ⓮; I/J-band (D 182, D 184 and D 186).
1 China LL-1 ⓯ (for LY 60N); I/J-band (D 185, D 181 and D 183).
Sonars: Graseby Type 184P; hull-mounted; active search and attack; medium frequency.
Kelvin Hughes Type 162M; hull-mounted; bottom classification; 50 kHz.
Thomson Marconi ATAS; active; medium frequency (D 183 and D 185).

Helicopters: 1 Westland Lynx HAS 3 ⓰.

Programmes: Acquired from the UK in 1993-94. *Tariq* arrived in Karachi 1 November 1993 and the last pair in January 1995. These ships replaced the 'Garcia' and 'Brooke' classes and have been classified as destroyers.
Modernisation: Exocet, torpedo tubes and Lynx helicopter facilities were all added in RN service, but torpedo tubes were subsequently removed in all but *Badr* and *Shahjahan* and all retrofitted by Pakistan using Swedish equipment. Exocet was not transferred and the obsolete Seacat SAM system has been replaced by Phalanx taken from the Gearings. Chinese LY 60N, which is a copy of Aspide, has been fitted in three of the class, Harpoon in three others. New EW equipment has been installed and ATAS sonar has been acquired (two sets only). There are still plans to update the hull sonars. Other equipment upgrades include a DA08 search radar in three of the class, an optronic director, new 30 mm and 20 mm guns, SRBOC chaff launchers. An improved combat data system with a datalink to shore HQ is also fitted in four of the class.
Structure: Due to cracking in the upper deck structure large strengthening pieces have been fixed to the ships' side at the top of the steel hull as shown in the illustration. The addition of permanent ballast to improve stability has increased displacement by about 350 tons. Further hull modifications to reduce noise and vibration started in 1988 and completed in all of the class by 1992.
Operational: Form 25th Destroyer Squadron.



SHAHJAHAN
(Scale 1 : 1,200), Ian Sturton / 0114784

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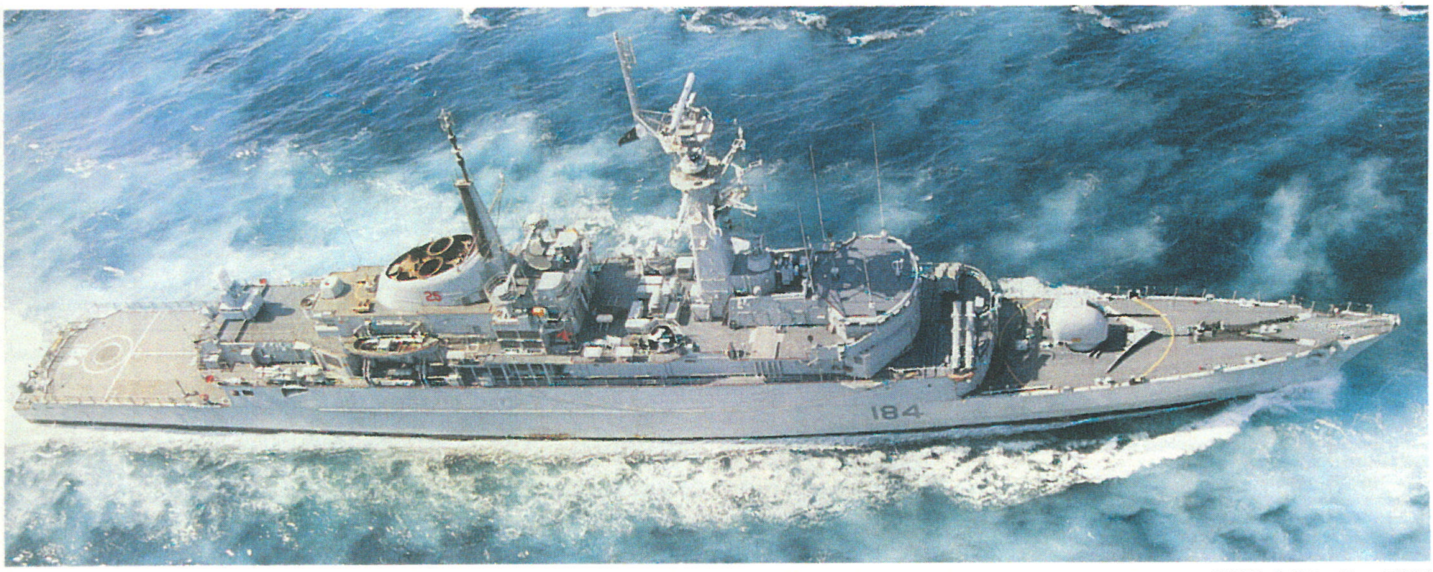
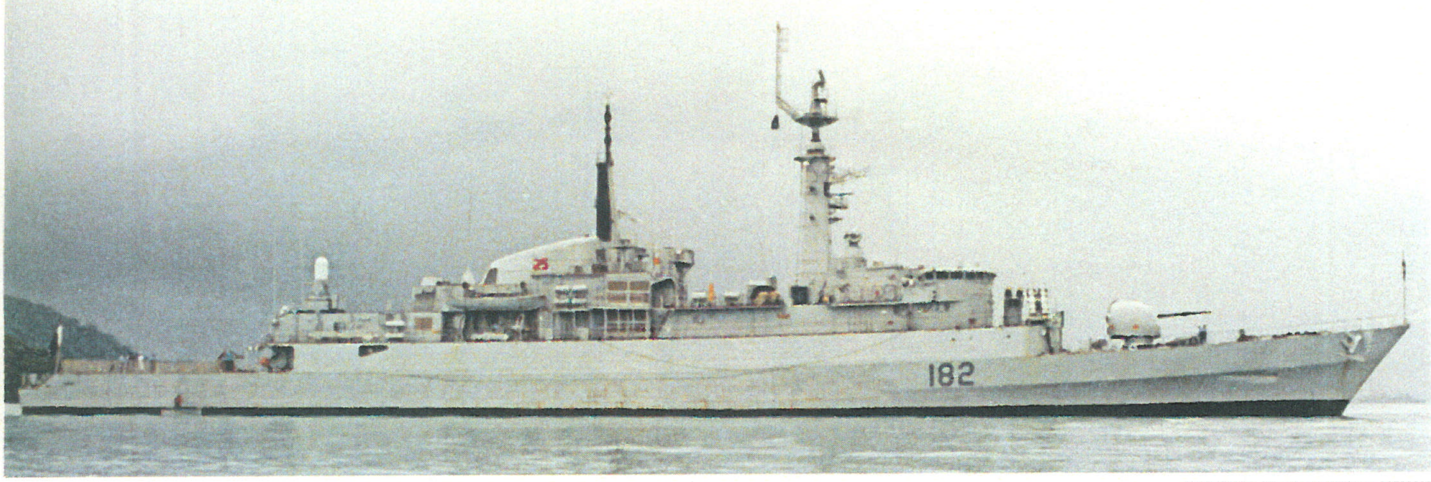
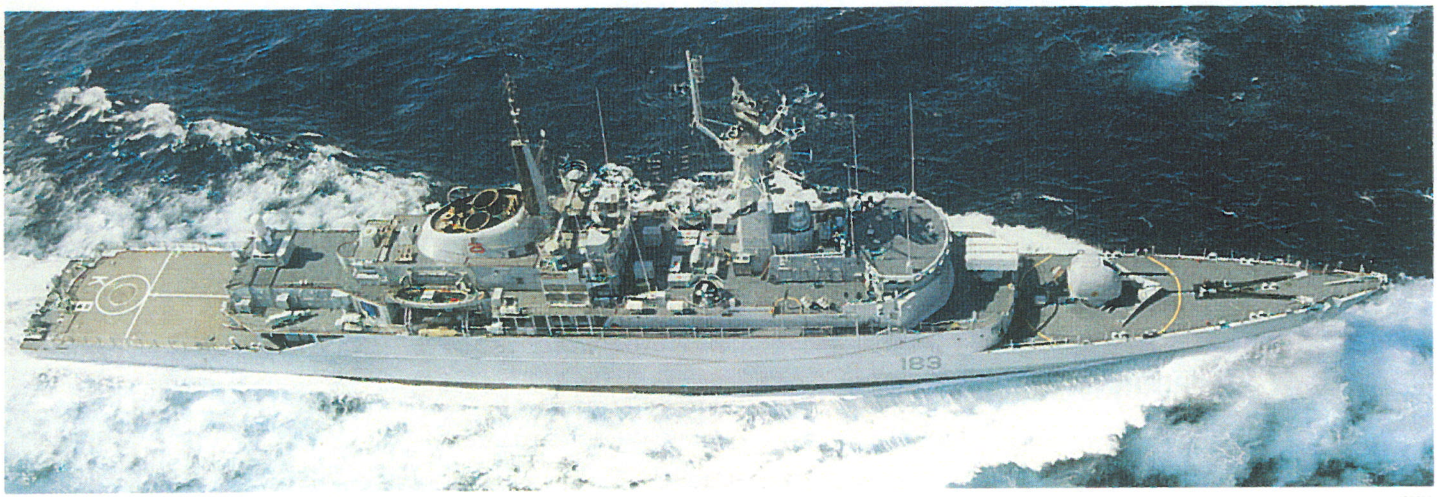


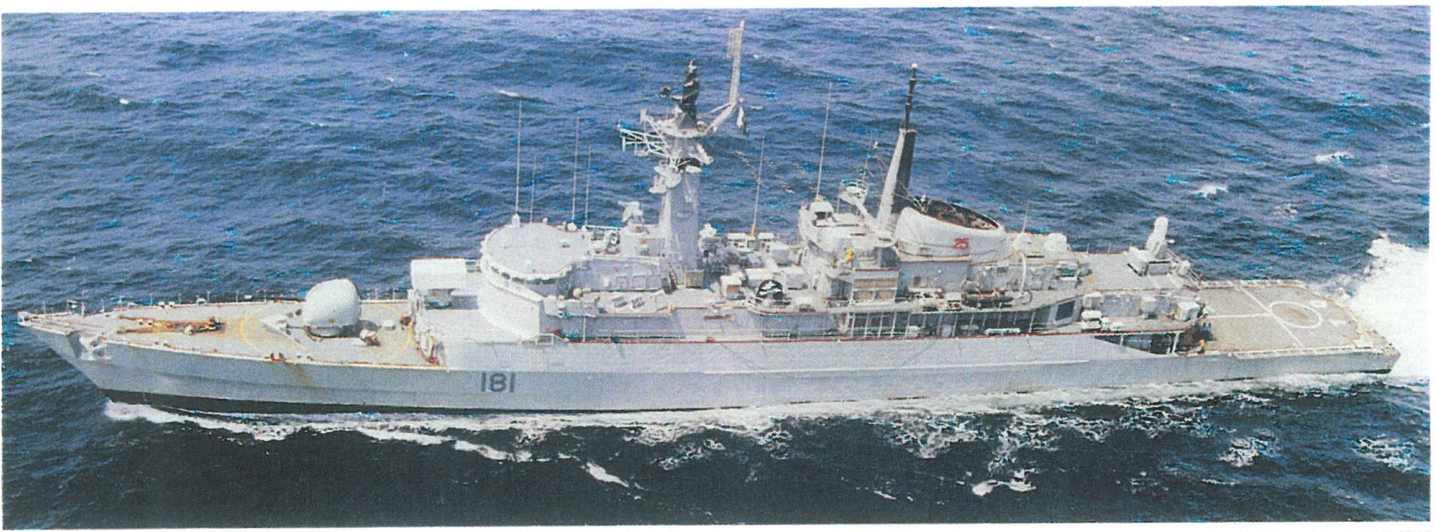
BADR *6/2000, Pakistan Navy* / 0105184



BABUR *10/2003*, Hartmut Ehlers* / 0569235



KHAIBAR *6/2000, Pakistan Navy* / 0105186



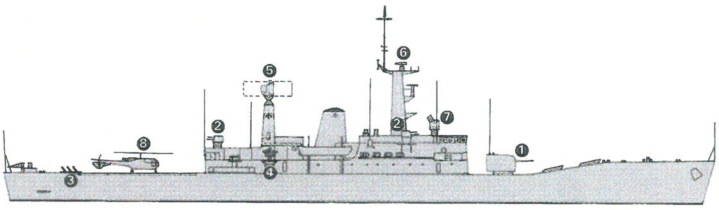
TARIQ *6/2000, Pakistan Navy* / 0105185

1 LEANDER CLASS (FFH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ZULFIQUAR (ex-*Apollo*)	F 262	Yarrows, Glasgow	1 May 1969	15 Oct 1970	28 May 1972

Displacement, tons: 2,500 standard; 2,962 full load
Dimensions, feet (metres): 360 wl; 372 oa × 43 × 14.8 (keel); 18 (screws) *(109.7; 113.4 × 13.1 × 4.5; 5.5)*
Main machinery: 2 Babcock & Wilcox boilers; 550 psi *(38.7 kg/cm²)*; 850°F *(454°C)*; 2 White/English Electric turbines; 30,000 hp *(22.4 MW)*; 2 shafts
Speed, knots: 28. **Range, miles:** 4,000 at 15 kt
Complement: 235 (15 officers)

Guns: 2 Vickers 4.5 in *(114 mm)*/45 Mk 6 (twin) ①; 20 rds/min to 19 km *(10.3 n miles)* anti-surface; 6 km *(3.3 n miles)* anti-aircraft; weight of shell 25 kg.
6—25 mm/60 (3 twin) ②; 270 rds/min to 3 km *(1.6 n miles)*; weight of shell 0.34 kg.
A/S mortars: 3-barrelled UK MoD Mortar Mk 10 ③; automatic loading; range 1 km; warhead 92 kg.
Countermeasures: Decoys: Graseby Type 182; towed torpedo decoy.
2 Vickers Corvus 8-barrelled trainable chaff launchers ④.
ESM: UA-8/9/13; radar warning.
ECM: Type 668; jammer.
Weapons control: MRS 3 system for 114 mm guns.
Radars: Air search: Marconi Type 966 ⑤; A-band; AKE-1.
Surface search: Plessey Type 994 ⑥; E/F-band.



LEANDER CLASS *(Scale 1 : 1,200), Ian Sturton*

Navigation: 1 Kelvin Hughes Type 1006 and 1 Kelvin Hughes Type 1007; I-band.
Fire control: Plessey Type 904 (for 114 mm guns) ⑦; I/J-band.
Sonars: Kelvin Hughes Type 162M; hull-mounted; bottom classification; 50 kHz.
Graseby Type 170B; hull-mounted; active search and attack; 15 kHz.
Graseby Type 184P; hull-mounted; active search and attack; 6-9 kHz.

Helicopters: 1 SA 319B Alouette III ⑧.

Programmes: Transferred from UK on 14 October 1988. From the Batch 3B broad-beamed group of this class.
Modernisation: Seacat and 20 mm guns replaced by twin 25 mm mountings. Additional navigation radar mounted on bridge roof.
Operational: Sailed for Pakistan in December 1988. Extensive refit carried out 1991-93.

UPDATED

LEANDER CLASS *3/1997* / 0012864

SHIPBORNE AIRCRAFT

Numbers/Type: 3 Westland Lynx HAS 3.
Operational speed: 120 kt *(222 km/h)*.
Service ceiling: 10,000 ft *(3,048 m)*.
Range: 320 n miles *(593 km)*.
Role/Weapon systems: Two delivered August 1994 and one in April 1995. Option on three more. Sensors: Ferranti Sea Spray radar, Orange Crop ESM. Weapons: ASW; two Mk 46 torpedoes. ASV; 2—12.7 mm MG pods; possibly Sea Skua ASM.

VERIFIED

LYNX HAS 3 *6/2001, Pakistan Navy* / 0114778

Numbers/Type: 6 Westland Sea King Mk 45.
Operational speed: 125 kt *(232 km/h)*.
Service ceiling: 10,500 ft *(3,200 m)*.
Range: 630 n miles *(1,165 km)*.
Role/Weapon systems: Sensors: MEL search radar, Marconi Type 2069 dipping sonar (two sets), AQS-928G acoustic processors. Weapons: ASW; two Mk 46 torpedoes; Mk 11 depth charges. ASV; one AM 39 Exocet missile.

UPDATED

SEA KING *6/2003*, Pakistan Navy* / 0569229

Numbers/Type: 2/4 Aerospatiale SA 319B/SA 316 Alouette III.
Operational speed: 113 kt *(210 km/h).*
Service ceiling: 10,500 ft *(3,200 m).*
Range: 290 n miles *(540 km).*
Role/Weapon systems: Reconnaissance helicopter. Second four acquired in 1994. Sensors: Weather/search radar MAD (in two). Weapons: ASW; Mk 11 depth charges, one Mk 46 torpedo.
UPDATED

ALOUETTE III *6/2003*, Pakistan Navy* / 0569234

LAND-BASED MARITIME AIRCRAFT

Notes: The Maritime Security Agency operates three Britten-Norman Maritime Defenders. with Bendix RDR 1400C radars.

42
MARITIME SECURITY AGENCY

DEFENDER *8/1996, MSA* / 0081375

Numbers/Type: 2 Lockheed P-3C Orion (Update II).
Operational speed: 410 kt *(760 km/h).*
Service ceiling: 28,300 ft *(8,625 m).*
Range: 4,000 n miles *(7,410 km).*
Role/Weapon systems: Order completed in 1991 but held up by the Pressler amendment, until delivery in December 1996. May be used for Elint. Sensors: APS-115 search radar; up to 100 sonobuoys; ASQ 81 MAD; ESM. Weapons: four Whitehead A 244 torpedoes or Mk 11 depth charges for ASW; Harpoon or Exocet AM 39 or C 802 for ASV.
VERIFIED

P-3C *6/2001, Pakistan Navy* / 0114783

Numbers/Type: 5 Fokker F27-200.
Operational speed: 250 kt *(463 km/h).*
Service ceiling: 29,500 ft *(8,990 m).*
Range: 2,700 n miles *(5,000 km).*
Role/Weapon systems: Acquired in 1994-96 for maritime surveillance. Sensors: APS 504(V)2 radar, Thomson-CSF DR 3000A ESM.
VERIFIED

AR-NZE
PAKISTAN NAVY

FOKKER F27-200 *6/2001, Pakistan Navy* / 0114780

Numbers/Type: 3 Breguet Atlantic 1.
Operational speed: 355 kt *(658 km/h).*
Service ceiling: 32,800 ft *(10,000 m).*
Range: 4,855 n miles *(8,995 km).*
Role/Weapon systems: Long-range MR/ASW cover for Arabian Sea; ex-French and Dutch stock. Upgraded in 1992-93. Three more acquired in 1994 for spares. Sensors: Thomson-CSF Ocean Master radar, Thomson-CSF DR 3000A ESM, MAD, sonobuoys, Sadang 1C sonobuoy signal processor. Weapons: ASW; nine Mk 46 torpedoes, Mk 11 depth bombs, mines. ASV; AM 39 Exocet missiles.
VERIFIED

ATLANTIC 1 *6/2001, Pakistan Navy* / 0114781

Numbers/Type: 12 AMD-BA Mirage III.
Operational speed: 750 kt *(1,390 km/h).*
Service ceiling: 59,055 ft *(18,000 m).*
Range: 740 n miles *(1,370 km).*
Role/Weapon systems: Operated by the Air Force, and all can be used for maritime strike. Sensors: Thomson-CSF radar. Weapons: ASV; two AM 39 Exocet or Harpoon; two 30 mm DEFA.
VERIFIED

PATROL FORCES

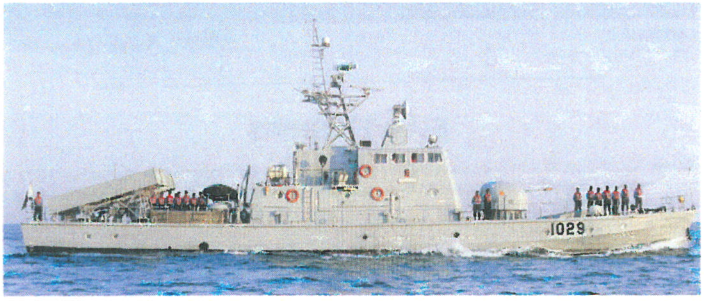
Notes: Eight Mekat type catamarans ordered in late 1997. These may be for Customs.

2 + (2) JALALAT CLASS (FAST ATTACK CRAFT—MISSILE) (PTG)

Name	*No*	*Builders*	*Launched*	*Commissioned*
JALALAT	1029 (ex-1022)	PN Dockyard, Karachi	16 Nov 1996	14 Aug 1997
SHUJAAT	1030	PN Dockyard, Karachi	26 Mar 1999	30 Sep 1999

Displacement, tons: 185 full load
Dimensions, feet (metres): 128 × 22 × 5.7 *(39 × 6.7 × 1.8)*
Main machinery: 2 MTU diesels; 5,984 hp(m) *(4.4 MW)* sustained; 2 shafts
Speed, knots: 23. **Range, miles:** 2,000 at 17 kt
Complement: 31 (3 officers)
Missiles: SSM: 4 China C 802 Saccade (2 twin); active radar homing to 120 km *(66 n miles)* at 0.9 Mach; warhead 165 kg; sea skimmer.
Guns: 2-37 mm/63 (twin); 180 rds/min to 8.5 km *(4.6 n miles)*; weight of shell 1.42 kg.
Countermeasures: Decoys: chaff launcher. ESM.
Radars: Surface search: Kelvin Hughes Type 756; I-band.
Fire control: Type 47G (for gun); Type SR-47 A/R (for SSM); I-band.

Comment: Designed with Chinese assistance to replace deleted 'Hegu' class. Same hull as *Larkana*. Two further craft with improved design and performance, have been reported under construction but the building programme has not been confirmed. ***UPDATED***



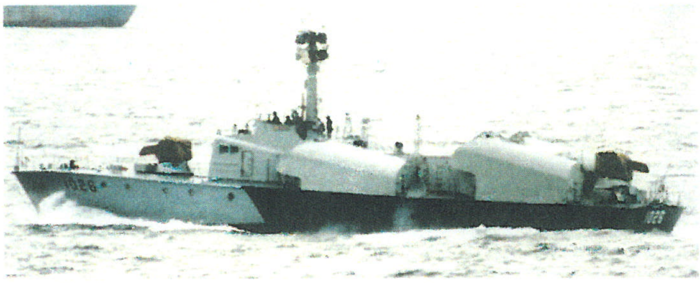
JALALAT *6/2000, Pakistan Navy* / 0105187

1 HUANGFEN CLASS (FAST ATTACK CRAFT—MISSILE) (PTFG)

DEHSHAT P 1026

Displacement, tons: 171 standard; 205 full load
Dimensions, feet (metres): 126.6 × 24.9 × 8.9 *(38.6 × 7.6 × 2.7)*
Main machinery: 3 Type 42-160 diesels; 12,000 hp(m) *(8.8 MW)* sustained; 3 shafts
Speed, knots: 35. **Range, miles:** 800 at 30 kt
Complement: 28
Missiles: SSM: 4 HY-2; active radar or IR homing to 80 km *(43.2 n miles)* at 0.9 Mach; warhead 513 kg.
Guns: 4 Norinco 25 mm/80 (2 twin); 270 rds/min to 3 km *(1.6 n miles)*; weight of shell 0.34 kg.
Radars: Surface search/target indication: Square Tie (352); I-band.

Comment: Transferred from China April 1984. Chinese version of the Soviet 'Osa II' class. One decommissioned in 2003. Assigned to 10th Patrol Squadron.
UPDATED



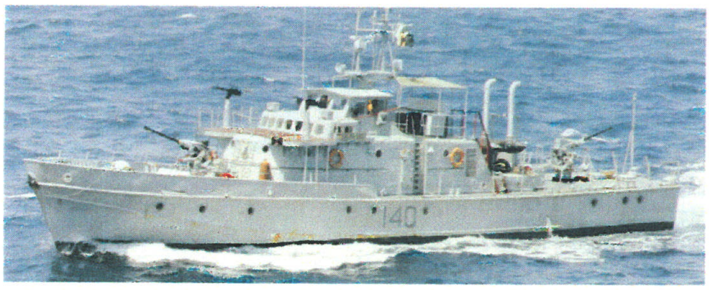
DEHSHAT *8/1994, van Ginderen Collection* / 0081376

1 TOWN CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
RAJSHAHI	P 140	Brooke Marine	1965

Displacement, tons: 115 standard; 143 full load
Dimensions, feet (metres): 107 × 20 × 6.9 *(32.6 × 6.1 × 2.1)*
Main machinery: 2 MTU 12V 538 diesels; 3,400 hp(m) *(2.5 MW)*; 2 shafts
Speed, knots: 24
Complement: 19
Guns: 2 Bofors 40 mm/60. 2-12.7 mm MGs.
Radars: Surface search: Pot Head; I-band.

Comment: The last survivor in Pakistan of a class of four built by Brooke Marine in 1965. Steel hull and aluminium superstructure. Assigned to 10th Patrol Squadron. ***UPDATED***



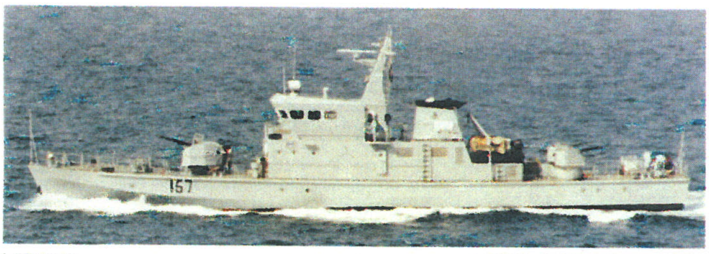
RAJSHAHI *6/2003*, Pakistan Navy* / 0569233

1 LARKANA CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
LARKANA	P 157	PN Dockyard, Karachi	6 June 1994

Displacement, tons: 180 full load
Dimensions, feet (metres): 128 × 22 × 5.4 *(39 × 6.7 × 1.7)*
Main machinery: 2 MTU diesels; 5,984 hp(m) *(4.4 MW)* sustained; 2 shafts
Speed, knots: 23. **Range, miles:** 2,000 at 17 kt
Complement: 25 (3 officers)
Guns: 2 Type 76A 37 mm/63 (twin). 4—25 mm/60 (2 twin).
Depth charges: 2 Mk 64 launchers.
Radars: Surface search: Kelvin Hughes Type 756; I-band.

Comment: Ordered in 1991 and started building in October 1992. Has replaced the last of the 'Hainan' class. The missile version on the same hull has taken priority but more may be built. Assigned to 10th Patrol Squadron. ***UPDATED***



LARKANA *6/2003*, Pakistan Navy* / 0569232

SURVEY SHIPS

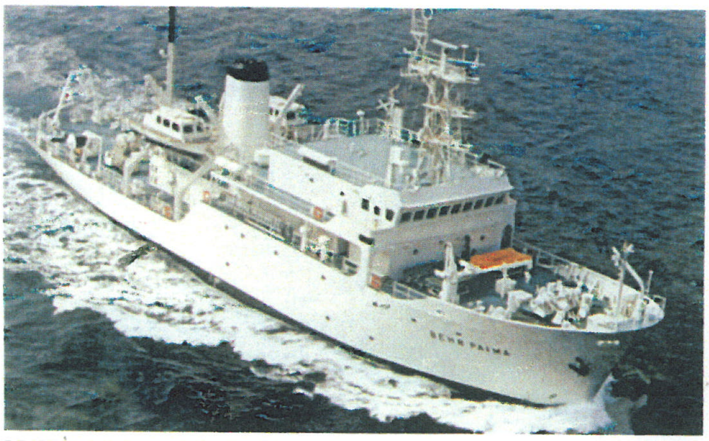
Notes: Acquisition of a new oceanographic research vessel was reported in November 2002 to have received Presidential approval. It is not clear whether this is to be a specialist or a multipurpose vessel.

1 SURVEY SHIP (AGS/AGOR)

Name	*No*	*Builders*	*Launched*	*Commissioned*
BEHR PAIMA	SV 48	Ishikawajima, Japan	7 July 1982	17 Dec 1982

Measurement, tons: 1,183 gross
Dimensions, feet (metres): 200.1 × 38.7 × 12.1 *(61 × 11.8 × 3.7)*
Main machinery: 2 Daihatsu 6DSM-22 diesels; 2,000 hp(m) *(1.47 MW)*; 2 shafts; cp props; bow thruster
Speed, knots: 13.7. **Range, miles:** 5,400 at 12 kt
Complement: 84 (16 officers)

Comment: Ordered in November 1981. Laid down 16 February 1982. Dynamic positioning system. Has seismic, magnetic and gravity survey equipment. DESO 20 deep echo sounder. There is a second survey ship *Jatli* under civilian control. ***UPDATED***



BEHR PAIMA *6/2003*, Pakistan Navy* / 0569231

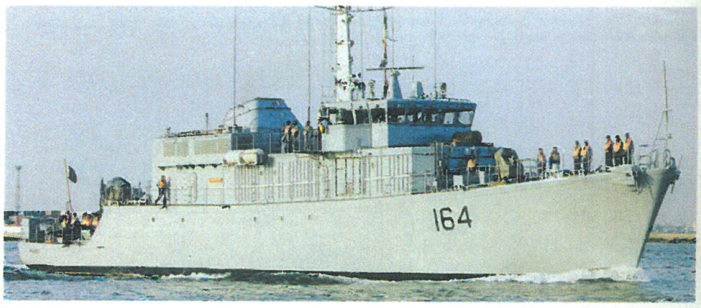
MINE WARFARE FORCES

3 MUNSIF (ÉRIDAN) CLASS (MINEHUNTERS) (MHSC)

Name	*No*	*Builders*	*Launched*	*Commissioned*
MUNSIF (ex-*Sagittaire*)	M 166	Lorient Dockyard	9 Nov 1988	27 July 1989
MUHAFIZ	M 163	Lorient Dockyard	8 July 1995	15 May 1996
MUJAHID	M 164	Lorient/PN Dockyard, Karachi	28 Jan 1997	9 July 1998

Displacement, tons: 562 standard; 595 full load
Dimensions, feet (metres): 168.9 × 29.2 × 9.5 *(51.5 × 8.9 × 2.9)*
Main machinery: 1 Stork Wärtsilä A-RUB 215X-12 diesel; 1,860 hp(m) *(1.37 MW)* sustained; 1 shaft; LIPS cp prop; auxiliary propulsion; 2 motors; 240 hp(m) *(179 kW)*; 2 active rudders; 2 bow thrusters
Speed, knots: 15; 7 on auxiliary propulsion. **Range, miles:** 3,000 at 12 kt
Complement: 46 (5 officers)
Guns: 1 GIAT 20F2 20 mm; 1-12.7 mm MG.
Countermeasures: MCM; 2 PAP 104 Mk 5 systems; mechanical sweep gear. Elesco MKR 400 acoustic sweep; MRK 960 magnetic sweep.
Combat data systems: Thomson-CSF TSM 2061 Mk 2 tactical system in the last pair.
Radars: Navigation: Racal Decca 1229 (M 166) or Kelvin Hughes 1007; I-band.
Sonars: Thomson Sintra DUBM 21B or 21D (163 and 164); hull-mounted; active; high frequency; 100 kHz (±10 kHz).
Thomson Sintra TSM 2054 MCM towed array may be included.

Comment: Contract signed with France 17 January 1992. The first recommissioned into the Pakistan Navy on 24 September 1992 after active service in the Gulf with the French Navy in 1991. Sailed for Pakistan in November 1992. The second was delivered in April 1996. The last one was transferred to Karachi by transporter ship in April 1995 with a final package following in November 1995. Form 21st Mine Countermeasures Squadron. ***UPDATED***



MUJAHID *6/2000, Pakistan Navy* / 0105188

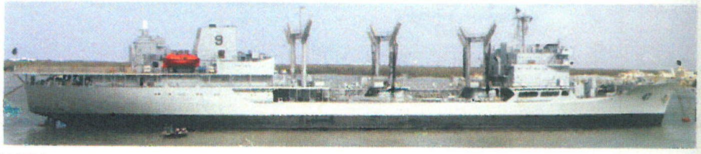
AUXILIARIES

1 FUQING CLASS (AORH)

Name	*No*	*Builders*	*Commissioned*
NASR (ex-*X-350*)	A 47	Dalian Shipyard	27 Aug 1987

Displacement, tons: 7,500 standard; 21,750 full load
Dimensions, feet (metres): 561 × 71.5 × 30.8 *(171 × 21.8 × 9.4)*
Main machinery: 1 Sulzer 8RLB66 diesel; 13,000 hp(m) *(9.56 MW)*; 1 shaft
Speed, knots: 18. **Range, miles:** 18,000 at 14 kt
Complement: 130 (during visit to Australia in October 1988 carried 373 (23 officers) including 100 cadets)
Cargo capacity: 10,550 tons fuel; 1,000 tons dieso; 200 tons feed water; 200 tons drinking water
Guns: 1 GE/GD Vulcan Phalanx CIWS. 4—37 mm (2 twin). 2—12.7 mm MGs.
Countermeasures: Decoys: SRBOC Mk 36 chaff launcher.
Radars: Navigation: 1 Kelvin Hughes 1007; 1 SPS 66; I-band.
Helicopters: 1 SA 319B Alouette III.

Comment: Similar to Chinese ships of the same class. Two replenishment at sea positions on each side for liquids and one for solids. Phalanx fitted on the hangar roof in 1995. Assigned to 42nd Auxiliary Squadron. ***UPDATED***



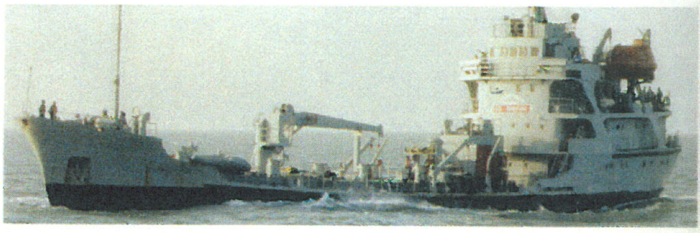
NASR *5/2003** / 0569225

2 COASTAL TANKERS (AOTL)

Name	*No*	*Builders*	*Commissioned*
GWADAR	A 49	Karachi Shipyard	1984
KALMAT	A 21	Karachi Shipyard	29 Aug 1992

Measurement, tons: 831 grt
Dimensions, feet (metres): 206 × 37.1 × 9.8 *(62.8 × 11.3 × 3)*
Main machinery: 1 Sulzer diesel; 550 hp(m) *(404 kW)*; 1 shaft
Speed, knots: 10
Complement: 25
Cargo capacity: 340 m³ fuel or water

Comment: Assigned to 42nd Auxiliary Squadron. ***UPDATED***



GWADAR *6/2003*, Pakistan Navy* / 0569230

1 POOLSTER CLASS (AORH)

Name	*No*	*Builders*	*Commissioned*	*Recommissioned*
MOAWIN (ex-*Poolster*)	A 20 (ex-A 835)	Rotterdamse Droogdok Mij	10 Sep 1964	28 July 1994

Displacement, tons: 16,800 full load
Measurement, tons: 10,000 dwt
Dimensions, feet (metres): 552.2 × 66.6 × 26.9 *(168.3 × 20.3 × 8.2)*
Main machinery: 2 boilers; 2 turbines; 22,000 hp(m) *(16.2 MW)*; 1 shaft
Speed, knots: 21
Complement: 200 (17 officers)
Cargo capacity: 10,300 tons including 8-9,000 tons oil fuel
Guns: 1 GE/GD 6-barrelled Vulcan Phalanx Mk 15 or 2 Oerlikon 20 mm.
Countermeasures: Decoys: SRBOC Mk 36 chaff launcher.
Radars: Air/surface search: Racal Decca 2459; F/I-band.
Navigation: Racal Decca TM 1229C; I-band.
Sonars: Signaal CWE 10; hull-mounted; active search; medium frequency.
Helicopters: 1 Sea King.

Comment: Acquired from the Netherlands Navy. Helicopter deck aft. Funnel heightened by 4.5 m *(14.8 ft)*. Capacity for five Lynx sized helicopters. Two fuelling stations each side for underway replenishment. Phalanx to be fitted in due course. Assigned to 42nd Auxiliary Squadron.

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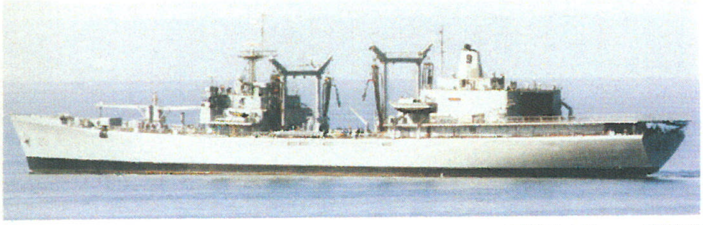

MOAWIN *3/2002, A Sharma* / 0534060

1 TANKER (AOTL)

ATTOCK A 40

Displacement, tons: 1,200 full load
Dimensions, feet (metres): 177.2 × 32.3 × 15.1 *(54 × 9.8 × 4.6)*
Main machinery: 2 diesels; 800 hp(m) *(276 kW)*; 2 shafts
Speed, knots: 8
Complement: 18
Cargo capacity: 550 tons fuel
Guns: 2 Oerlikon 20 mm.

Comment: Built in Italy in 1957. Assigned to 42nd Auxiliary Squadron.

VERIFIED

ATTOCK *6/1995* / 0081385

MARITIME SECURITY AGENCY

Notes: (1) All ships are painted white with a distinctive diagonal blue and red band and MSA on each side.
(2) One Britten-Norman Maritime Defender acquired in 1993, a second in 1994 and a third in March 2004. Based near Karachi with 93 Squadron.
(3) Plans for new ships and aircraft are under consideration.

2 SHANGHAI II CLASS (FAST ATTACK CRAFT—GUN) (PB)

SUBQAT P 1066 **RAFAQAT** P 1068

Displacement, tons: 131 full load
Dimensions, feet (metres): 127.3 × 17.7 × 5.6 *(38.8 × 5.4 × 1.7)*
Main machinery: 2 Type L12-180 diesels; 2,400 hp(m) *(1.76 MW)* (forward); 2 Type 12-D-6 diesels; 1,820 hp(m) *(1.34 MW)* (aft); 4 shafts
Speed, knots: 30. **Range, miles:** 700 at 16.5 kt
Complement: 34
Guns: 2—37 mm/63 (twin). 2—25 mm/80 (twin).
Depth charges: 2 projectors; 8 weapons.
Mines: Fitted with mine rails for approx 10 mines.
Radars: Surface search: Anritsu ARC-32A; I-band.

Comment: Four of the class were transferred from the Navy in 1986 and two more in 1998. The last pair were then replaced by naval craft. All were originally acquired from China 1972-1976.

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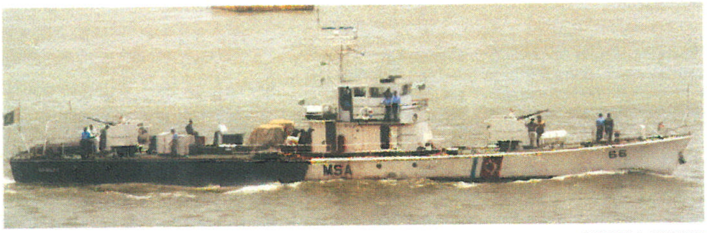


SUBQAT *5/2003** / 0569223

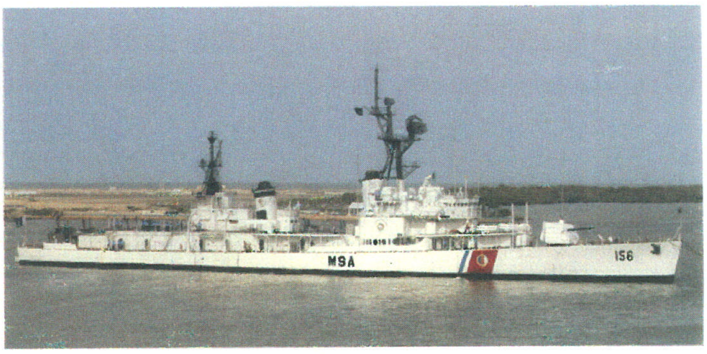
1 GEARING (FRAM 1) CLASS (DD)

Name	*No*	*Builders*	*Commissioned*
NAZIM (ex-*Tughril*)	D 156 (ex-D 167)	Todd Pacific	4 Aug 1945

Displacement, tons: 2,425 standard; 3,500 full load
Dimensions, feet (metres): 390.5 × 41.2 × 19 *(119 × 12.6 × 5.8)*
Main machinery: 4 Babcock & Wilcox boilers; 600 psi *(43.3 kg/cm²)*; 850°F *(454°C)*; 2 GE turbines; 60,000 hp *(45 MW)*; 2 shafts
Speed, knots: 32. **Range, miles:** 4,500 at 16 kt
Complement: 180 (15 officers)
Guns: 1 US 5 in *(127 mm)*/38 Mk 38; 15 rds/min to 17 km *(9.3 n miles)* anti-surface; 11 km *(5.9 n miles)*; anti-aircraft; weight of shell 25 kg.
4—25 mm (2 twin).
Countermeasures: Decoys: 2 Plessey Shield 6-barrelled fixed launchers; chaff and IR flares in distraction, decoy or centroid modes.
Weapons control: Mk 37 for 5 in guns. OE 2 SATCOM.
Radars: Surface search: Raytheon/Sylvania; SPS-10; G-band.
Navigation: KH 1007; I-band.
Fire control: Western Electric Mk 25; I/J-band.

Comment: Transferred from the US on 30 September 1980 to the Navy. Passed on to the MSA in 1998 and renamed. This is the third Gearing to be renamed *Nazim*, the previous pair having been sunk as targets. All weapon systems removed except the main gun. Serves as the MSA Flagship.

UPDATED



NAZIM *5/2003** / 0569224

4 BARKAT CLASS (PBO)

Name	*No*	*Builders*	*Commissioned*
BARKAT	1060 (ex-P 60)	China Shipbuilding Corp	29 Dec 1989
REHMAT	1061 (ex-P 61)	China Shipbuilding Corp	29 Dec 1989
NUSRAT	1062 (ex-P 62)	China Shipbuilding Corp	13 June 1990
VEHDAT	1063 (ex-P 63)	China Shipbuilding Corp	13 June 1990

Displacement, tons: 435 full load
Dimensions, feet (metres): 190.3 × 24.9 × 7.5 *(58 × 7.6 × 2.3)*
Main machinery: 4 MTU 16V 396 TB93 diesels; 8,720 hp(m) *(6.4 MW)* sustained; 4 shafts
Speed, knots: 27. **Range, miles:** 1,500 at 12 kt
Complement: 50 (5 officers)
Guns: 2—37 mm/63 (1 twin). 2—14.5 mm/60 (twin).
Radars: Surface search: 2 Anritsu ARC-32A; I-band.

Comment: Type P58A patrol craft built in China for the MSA. First two arrived in Karachi at the end of January 1990, second pair in August 1990. Some of this type of ship are in service with Chinese paramilitary forces.

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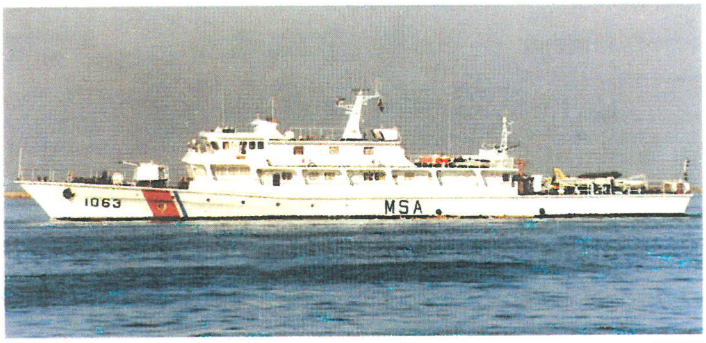


VEHDAT *6/1994, Maritime Security Agency* / 0081380

COAST GUARD

Notes: (1) Unlike the Maritime Security Agency which comes under the Defence Ministry, the official Coast Guard was set up in 1985 and is manned by the Army and answerable to the Ministry of the Interior.
(2) The Customs Service is manned by naval personnel. It operates approximately 18 craft of which most are Crestifalia MV 55.

1 SWALLOW CLASS (PB)

SAIF

Displacement, tons: 52 full load
Dimensions, feet (metres): 65.6 × 15.4 × 4.3 *(20.0 × 4.7 × 1.3)*
Main machinery: 2 GM Detroit 12V71 T1 diesels; 2,120 hp *(1.58 MW)*; 2 shafts
Speed, knots: 25. **Range, miles:** 500 at 20 kt
Complement: 8
Guns: 2—12.7 mm MGs.

Comment: Built by Swallowcraft/Kangnam and delivered in 1986.

NEW ENTRY

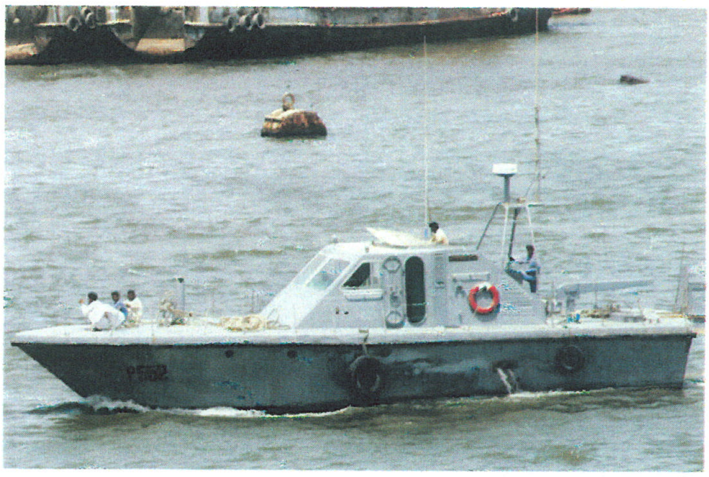
4 CRESTIFALIA MV 55 CLASS (PBF)

SADD P 551 **SHABHAZ** P 552 **VAQAR** P 553 **BURQ** P 554

Displacement, tons: 23 full load
Dimensions, feet (metres): 54.1 × 17.1 × 2.95 *(16.5 × 5.2 × 0.9)*
Main machinery: 2 MTU diesels; 2,200 hp *(1.64 MW)*; 2 shafts
Speed, knots: 35. **Range, miles:** 425 at 25 kt
Complement: 5

Comment: Delivered in 1987.

NEW ENTRY



SHABHAZ *5/2003** / 0569228

TUGS

Notes: *Jandar* and *Jafakash* are two pusher tugs (10 ton bollard pull) built by Karachi Shipyard and commissioned in 2000.

4 COASTAL TUGS (YTB)

Name	*No*	*Builders*	*Commissioned*
BHOLU	A 44	Giessendam Shipyard, Netherlands	Apr 1991
GAMA	A 45	Giessendam Shipyard, Netherlands	Apr 1991
JANBAZ	–	Karachi Shipyard	Sep 1990
JOSHILA	–	Karachi Shipyard	Sep 2000

Displacement, tons: 265 full load
Dimensions, feet (metres): 85.3 × 22.3 × 9.5 *(26 × 6.8 × 2.9)*
Main machinery: 2 Cummins KTA38-M diesels; 1,836 hp *(1.26 MW)* sustained; 2 shafts
Speed, knots: 12
Complement: 6

Comment: Details are for *Bholu* and *Gama*, built by Damen Shipyards and which entered service in 1991. *Janbaz* and *Joshila* were built by Karachi Shipyard and delivered in 1990 and 2000 respectively.

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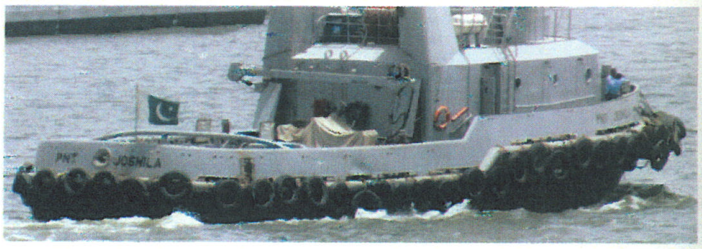
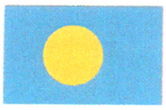


JOSHILA *5/2003** / 0569222



Palau

Country Overview

The Republic of Palau was a US-administered UN Trust territory from 1947 before becoming independent in 1994 when a Compact of Free Association, delegating to the US the responsibility for defence and foreign affairs, came into effect. Situated in the western Pacific Ocean, the country comprises about 200 of the Caroline Islands archipelago spread in a chain about 350 n miles long. These include Koror (the administrative centre), Babelthuap (the largest island), Arakabesan, Malakal and Peleliu. The capital is currently on Koror, but a new capital is being built in eastern Babelthuap. Territorial seas (3 n miles) are claimed. An extended fisheries zone (200 n miles) is also claimed but limits have not been fully defined.

Headquarters Appointments

Chief of Marine Law Enforcement Division:
Lieutenant Thomas Heine
Maritime Surveillance Adviser:
Lieutenant Commander R Heffey, RAN

PATROL FORCES

1 PACIFIC CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
PRESIDENT H I REMELIIK	001	Transfield Shipbuilding	May 1996

Displacement, tons: 162 full load
Dimensions, feet (metres): 103.3 × 26.6 × 6.9 *(31.5 × 8.1 × 2.1)*
Main machinery: 2 Caterpillar 3516TA diesels; 4,400 hp *(3.28 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 2,500 at 12 kt
Complement: 17 (3 officers)
Guns: 2—7.62 mm MGs.
Radars: Surface search: Furuno 1011; I-band.

Comment: Ordered in 1995. This was the 21st hull in the 'Pacific' class programme. Following the decision by the Australian government to extend the Pacific Patrol Boat project, the ship underwent a half-life refit at Gladstone in 2003. A life-extension refit will be required in 2011.

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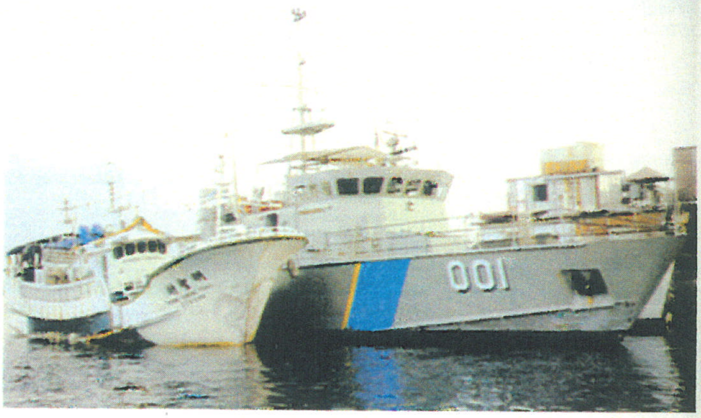
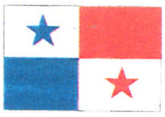


PRESIDENT H I REMELIIK (with Taiwanese fishing vessel outboard)
2000, RAN / 0105189



Panama

Country Overview

The Republic of Panama is an independent state situated on the isthmus linking South America with Central and North America. Bordered to the west by Costa Rica and to the east by Colombia, it has an area of 29,157 square miles and a 664 n mile coastline with the north Pacific Ocean and of 370 n miles with the Caribbean. The country is bisected by the Panama Canal. A new treaty in 1977 ended US operation, maintenance and defence of the canal in 1999. The capital is Panama City while the main ports are Balboa, Cristóbal, Coco Solo, Bahía Las Minas, Vacamonte, Almirante and Puerto Armuelles. Territorial seas (12 n miles) are claimed. An Exclusive Economic Zone (EEZ) (200 n miles) has been defined by boundary agreements. Reform of the security apparatus led to the creation of the Panamanian Public Forces, which includes the National Maritime Service, in 1994.

Headquarters Appointments

Director General National Maritime Service:
Captain José Antonio Isaza Ros

Personnel

(a) 2004: 620
(b) Voluntary service

Bases

Isla Flamenco (HQ) (Punta Brujas — HQ designate), Quebrada de Piedra, Largo Remo (under construction), Punta Cocos (air), Kuna Yala (air) (under construction)

PATROL FORCES

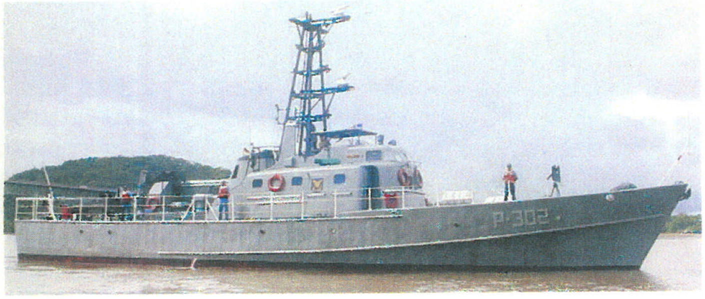
Notes: A further patrol craft *Cocle* P 814 has been reported.

2 VOSPER TYPE (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
PANQUIACO	P 301 (ex-GC 10)	Vospers, Portsmouth	July 1971
LIGIA ELENA	P 302 (ex-GC 11)	Vospers, Portsmouth	July 1971

Displacement, tons: 96 standard; 145 full load
Dimensions, feet (metres): 103 × 18.9 × 5.8 *(31.4 × 5.8 × 1.8)*
Main machinery: 2 Detroit diesels; 5,000 hp *(3.73 MW)*; 2 shafts
Speed, knots: 18. **Range, miles:** 1,500 at 14 kt
Complement: 17 (3 officers)
Guns: 2—7.62 mm MGs.
Radars: Surface search: Raytheon R-81; I-band.

Comment: *Panquiaco* launched on 22 July 1970, *Ligia Elena* on 25 August 1970. Hull of welded mild steel and upperworks of welded or buck-bolted aluminium alloy. Vosper fin stabiliser equipment. P 302 was sunk in December 1989, but subsequently recovered. Both vessels had major repairs in the Coco Solo shipyard from September 1992. This included new engines, a new radar and replacement guns. Pacific Flotilla.
UPDATED



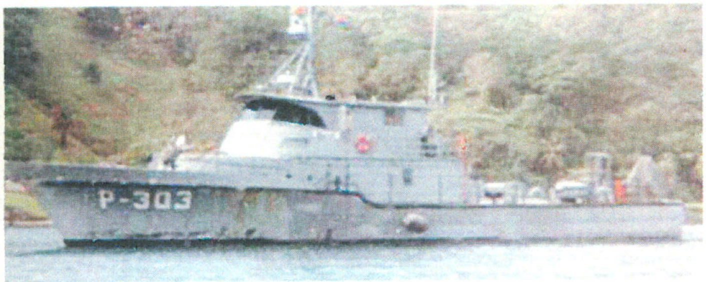
LIGIA ELENA *6/2003*, Panama Maritime Service* / 0568905

1 COASTAL PATROL CRAFT (PB)

Name	*No*	*Builders*	*Commissioned*
NAOS (ex-*Erline*)	P 303 (ex-RV 821)	Equitable, NO	Dec 1964

Displacement, tons: 120 full load
Dimensions, feet (metres): 105 × 24.9 × 6.9 *(32 × 7.6 × 2.1)*
Main machinery: 2 Caterpillar diesels; 2 shafts
Speed, knots: 10. **Range, miles:** 550 at 8 kt
Complement: 11 (2 officers)
Guns: 2—7.62 mm MGs.
Radars: Surface search: Raymarx 2600; I-band.

Comment: Served as a support/research craft at the US Underwater Systems establishment at Bermuda. Transferred from US in July 1992 and recommissioned in December 1992. Refitted in 1997 with new engines. Pacific Flotilla.
VERIFIED



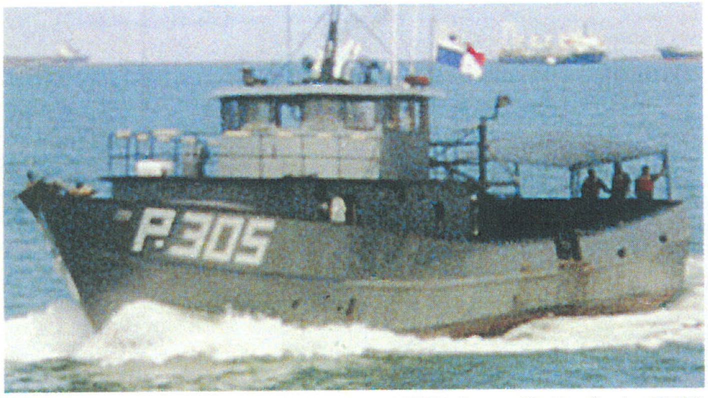
NAOS *6/2002, Panama Maritime Service* / 0525006

1 COASTAL PATROL CRAFT (PB)

ESCUDO DE VERAGUAS (ex-*Aun Sin Nombre*, ex-*Kathyuska Kelly*) P 305 (ex-P 206)

Displacement, tons: 158 full load
Dimensions, feet (metres): 90.5 × 24.1 × 6.1 *(27.6 × 7.3 × 1.9)*
Main machinery: 2 Detroit 12V-71 diesels; 840 hp *(627 kW)* sustained; 2 shafts
Speed, knots: 10
Complement: 10 (2 officers)
Guns: 1—12.7 mm MG.
Radars: Surface search: Raytheon; I-band.

Comment: Confiscated drug runner craft taken into service in 1996. Also used for transport duties. Caribbean Flotilla.
VERIFIED

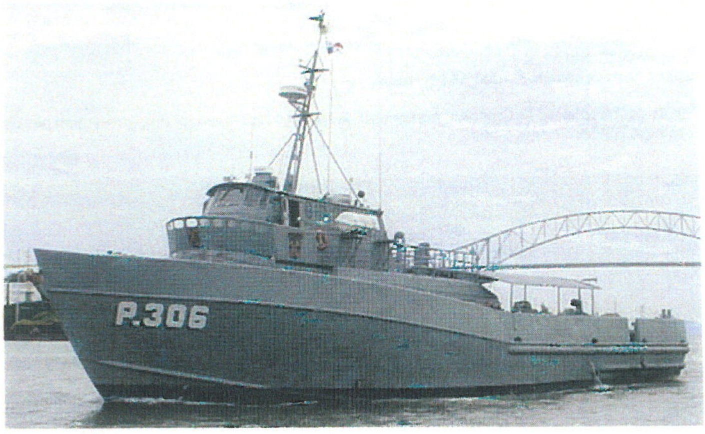


ESCUDO DE VERAGUAS *11/1998, Panama Maritime Service* / 0052687

1 COASTAL PATROL CRAFT (PB)

TABOGA P 306

Comment: Details not confirmed. Possibly a confiscated vessel.
NEW ENTRY



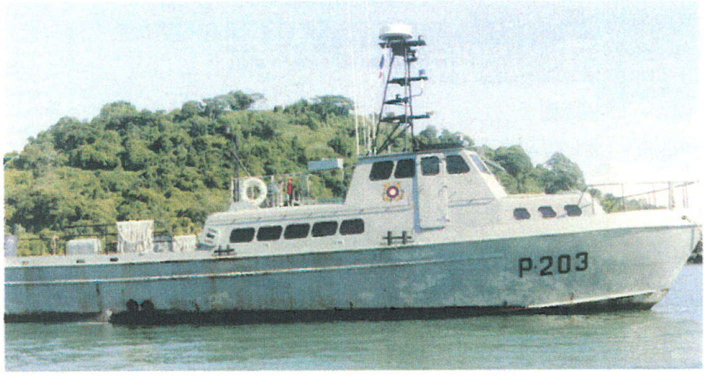
TABOGA *6/2003*, Panama Maritime Service* / 0568904

1 NEGRITA CLASS (COASTAL PATROL CRAFT) (PB)

CACIQUE NOME (ex-*Negrita*) P 203

Displacement, tons: 68 full load
Dimensions, feet (metres): 80 × 15 × 6 *(24.4 × 4.6 × 1.8)*
Main machinery: 2 Detroit 12V-71 diesels; 840 hp *(627 kW)*; 2 shafts
Speed, knots: 13. **Range, miles:** 250 at 10 kt
Complement: 8 (2 officers)
Guns: 2—7.62 mm MGs.
Radars: Surface search: Raytheon 71; I-band.

Comment: Completely rebuilt in the Coco Solo shipyard and recommissioned 5 May 1993. Pacific Flotilla.
VERIFIED



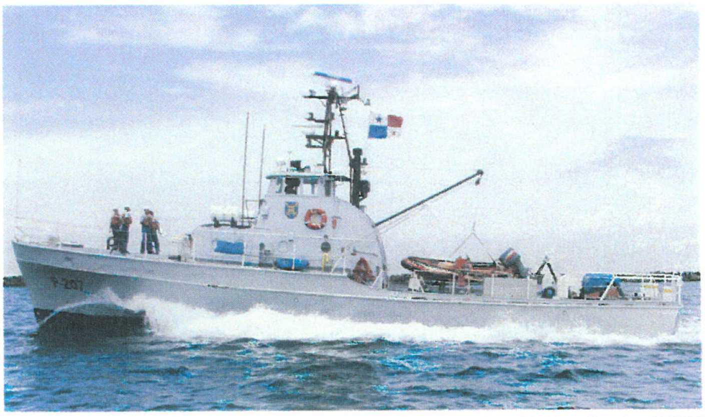
CACIQUE NOME *8/1998, Panama Maritime Service* / 0052688

5 POINT CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
3 DE NOVIEMBRE (ex-*Point Barrow*)	P 204 (ex-82348)	CG Yard, MD	4 Oct 1964
10 DE NOVIEMBRE (ex-*Point Huron*)	P 206 (ex-82357)	CG Yard, MD	17 Feb 1967
28 DE NOVIEMBRE (ex-*Point Frances*)	P 207 (ex-82356)	CG Yard, MD	3 Feb 1967
4 DE NOVIEMBRE (ex-*Point Winslow*)	P 208 (ex-82360)	J M Martinac, Tacoma	3 Mar 1967
5 DE NOVIEMBRE (ex-*Point Hannon*)	P 209 (ex-82355)	J M Martinac, Tacoma	23 Jan 1967

Displacement, tons: 69 full load
Dimensions, feet (metres): 83 × 17.2 × 5.8 *(25.3 × 5.2 × 1.8)*
Main machinery: 2 Cummins V-12-900M diesels; 1,600 hp *(1.18 MW)*; 2 shafts
Speed, knots: 18. **Range, miles:** 1,500 at 8 kt
Complement: 10 (2 officers)
Guns: 2—7.62 mm MGs.
Radars: Surface search: Raytheon Pathfinder; I-band.

Comment: First one transferred from US Coast Guard 7 June 1991 and recommissioned 10 July 1991. Further two transferred 22 April 1999. Fourth transferred 20 September 2000 and fifth on 11 January 2001. Carry a RIB with a 40 hp engine. Caribbean Flotilla.
UPDATED



28 DE NOVIEMBRE *6/2003*, Panama Maritime Service* / 0568902

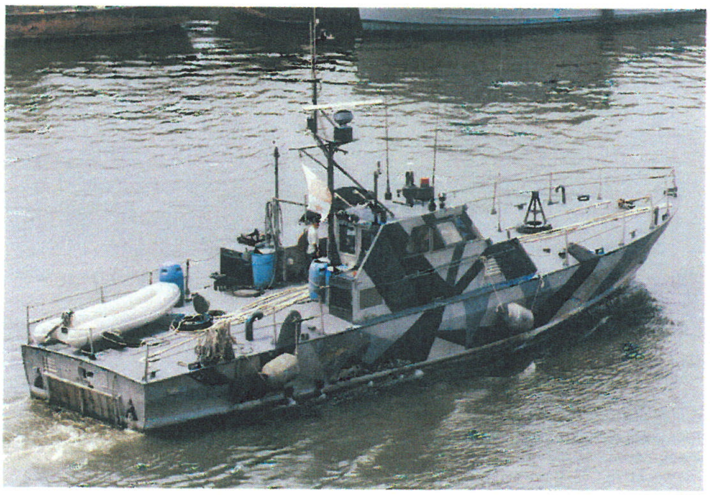
3 COASTAL PATROL CRAFT (PB)

CHIRIQUI P 841 **VERAGUAS** P 842 **BOCAS DEL TORO** P 843

Displacement, tons: 46 full load
Dimensions, feet (metres): 73.8 × 17.3 × 2.9 *(22.5 × 5.3 × 0.9)*
Main machinery: 3 Detroit 12V 71 diesels; 1,260 hp *(940 kW)* sustained; 3 shafts
Speed, knots: 20
Complement: 7 (1 officer)
Guns: 2—7.62 mm MGs.
Radars: Surface search: Furuno 1411; I-band.

Comment: Transferred as Grant-Aid from the US in March 1998. Used for drug prevention patrols in both Flotillas.

UPDATED



BOCAS DEL TORO *6/2003** / 0568903

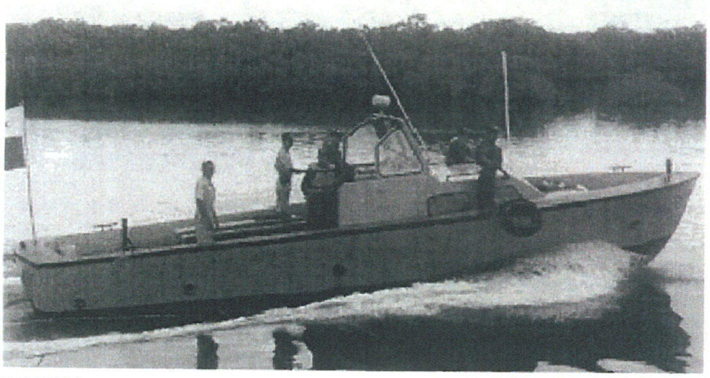
2 HARBOUR PATROL CRAFT (PB)

PANAMA P 101 **CALAMAR** P 102 (ex-PC 3602)

Displacement, tons: 11 full load
Dimensions, feet (metres): 36 × 13 × 3 *(11 × 4 × 0.9)*
Main machinery: 1 Detroit 6-71T diesel; 300 hp *(224 kW)*; 1 shaft
Speed, knots: 15. **Range, miles:** 160 at 12 kt
Complement: 5
Guns: 1—7.62 mm MG.

Comment: P 102 in service from December 1992, P 101 from February 1998. GRP construction. Pacific flotilla.

VERIFIED



CALAMAR *8/1996, Panama Maritime Service*

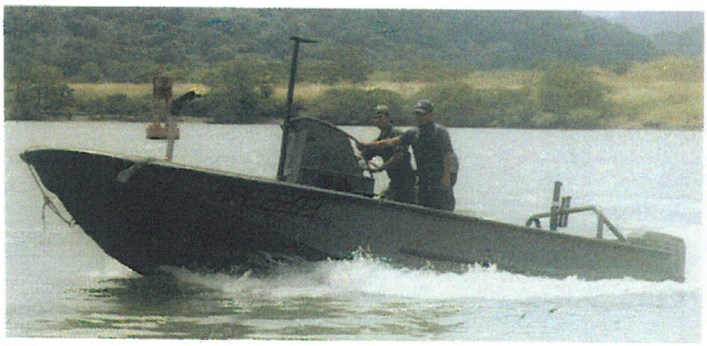
6 FAST PATROL BOATS (PBF)

BPC 2201, 2203, 2206, 2207-2209

Dimensions, feet (metres): 22.3 × 7.5 × 2 *(6.8 × 2.3 × 0.6)*
Main machinery: 2 Johnson outboards; 280 hp *(209 kW)*
Speed, knots: 35
Complement: 4
Guns: 1—7.62 mm MG.

Comment: *BPC 2201-2205* are Boston Whaler 'Piraña' class acquired between June 1991 and October 1992.

VERIFIED



BPC 2203 *11/1998, Panama Maritime Service* / 0052690

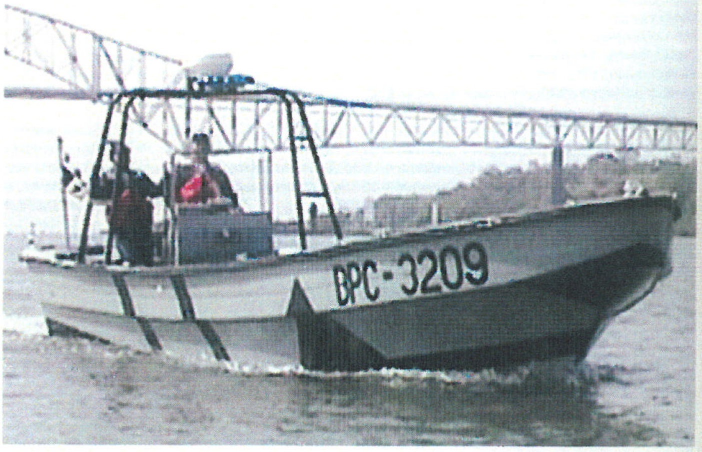
10 FAST PATROL BOATS (PBF)

BPC 3201, 3207-3209, 3214-3215, 3220, 3222-3223, 3225

Dimensions, feet (metres): 33.5 × 7.5 × 2 *(10.2 × 2.3 × 0.6)*
Main machinery: 2 Yamaha outboards; 400 hp(m) *(294 kW)*
Speed, knots: 35
Complement: 4
Guns: 1—7.62 mm MG.

Comment: 'Eduardoño' class acquired between June 1995 and October 1998.

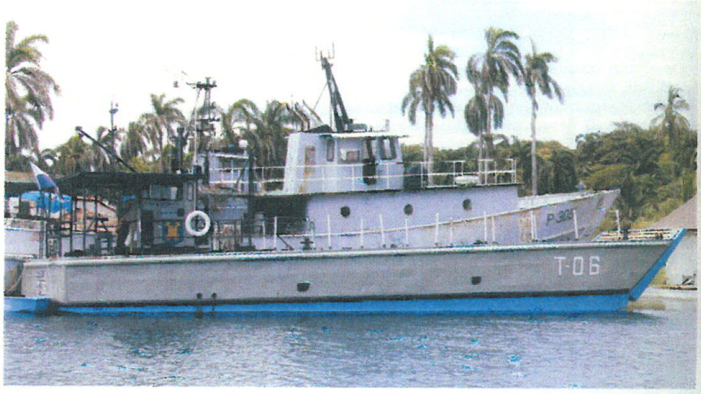
VERIFIED



BPC 3209 *6/2002, Panama Maritime Service* / 0525007

AUXILIARIES

Notes: Two auxiliary craft *Frailes del Norte* T 06 and *Frailes del Sur* T 07 have been reported.



FRAILES DEL NORTE *6/2003*, Panama Maritime Service* / 0568901

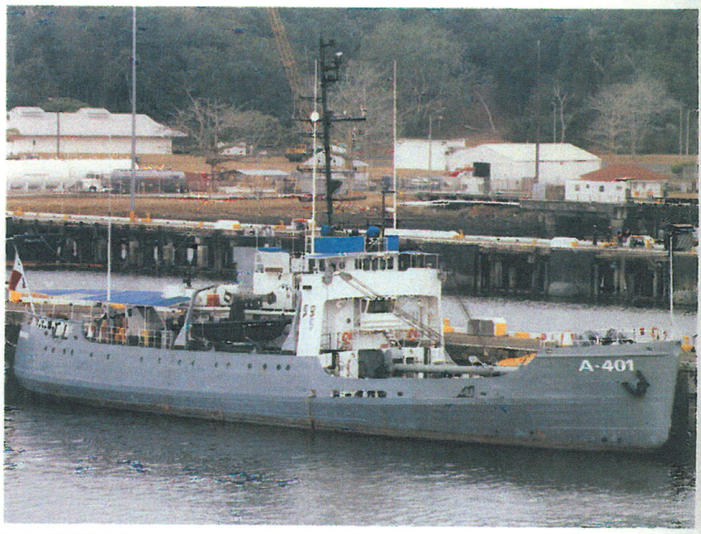
1 BALSAM CLASS (PBO)

Name	*No*	*Builders*	*Commissioned*
INDEPENDENCIA (ex-*Sweetgum*)	A 401 (ex-WLB 309)	Marine Iron and Shipbuilding Corp, Duluth, Minnesota	20 Nov 1943

Displacement, tons: 1,034 full load
Dimensions, feet (metres): 180 × 37 × 12 *(54.9 × 11.3 × 3.8)*
Main machinery: Diesel electric; 2 diesels; 1,402 hp *(1.06 MW)*; 1 motor; 1,200 hp *(895 kW)*; 1 shaft; bow thruster
Speed, knots: 13. **Range, miles:** 8,000 at 12 kt
Complement: 53
Guns: 2—12.7 mm MGs.
Radars: Navigation: Raytheon SPS-64(V)1.

Comment: Transferred from US Coast Guard on 15 February 2002.

UPDATED



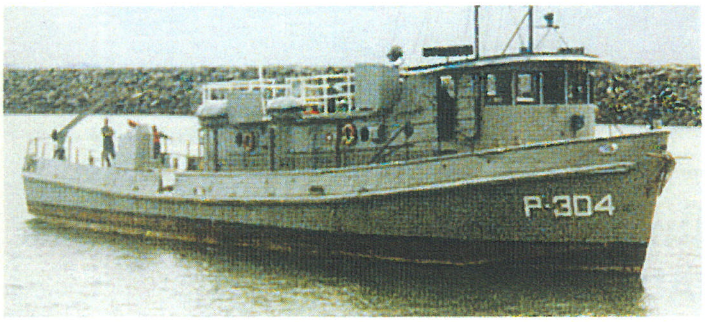
INDEPENDENCIA *5/2003** / 0568900

1 COASTAL PATROL CRAFT (YO)

FLAMENCO (ex-*Scheherazade*) A 402 (ex-P 304, ex-WB 831)

Displacement, tons: 220 full load
Dimensions, feet (metres): 105 × 25 × 6.9 *(32 × 7.6 × 2.1)*
Main machinery: 2 Caterpillar diesels; 2 shafts
Speed, knots: 10
Complement: 11 (2 officers)
Guns: 2—7.62 mm MGs.
Radars: Surface search: Furuno FCR 1411; I-band.

Comment: Built in 1963. Transferred from US 22 July 1992 and commissioned in December 1992. Former US wooden hulled COOP craft. Refitted in Panama in 1994. Now used as a refuelling auxiliary. ***VERIFIED***



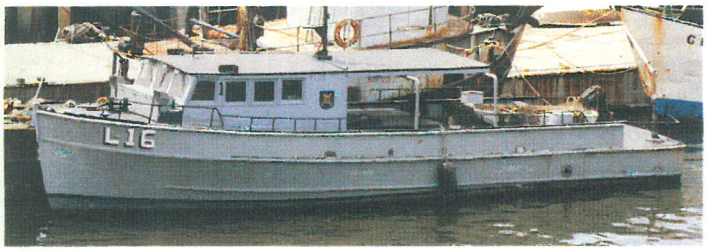
FLAMENCO (old number) *12/1998, Panama Maritime Service* / 0052686

1 MSB 5 CLASS (YAG)

NOMBRE DE DIOS (ex-*MSB 25*) L 16

Displacement, tons: 44 full load
Dimensions, feet (metres): 57.2 × 15.5 × 4 *(17.4 × 4.7 × 1.2)*
Main machinery: 2 Detroit diesels; 600 hp *(448 kW)*; 2 shafts
Speed, knots: 12
Complement: 6 (1 officer)
Guns: 1—7.62 mm MG.
Radars: Navigation: Raytheon Raystar; I-band.

Comment: Built between 1952 and 1956. Former US minesweeping boat. Served in the canal area until 1992 and transferred from US to Panama in December 1992 after refit. Wooden hull, new engine. Used as logistic craft. Pacific flotilla. ***UPDATED***

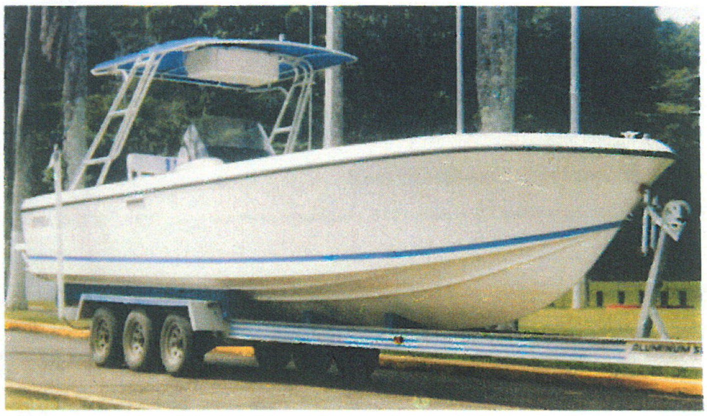


NOMBRE DE DIOS *6/2003** / 0568899

6 SUPPORT CRAFT (YAG)

DORADO I BA 055	**AGUACERO** BA 057
DORADO II BA 056	**PORTOBELO** BA 058
DORADO III —	**FANTASMA AZUL** BA 059

Comment: *Dorado I* and *II* acquired in February 1998 and are used as 40 kt supply craft. *Aguacero* is a confiscated 50 kt power boat taken into service in November 1998. ***VERIFIED***



DORADO I *12/1998, Panama Maritime Service* / 0052692

1 LOGISTIC CRAFT (YAG)

ISLA PARIDAS (ex-*Endeavour*) L 21

Displacement, tons: 120 full load
Dimensions, feet (metres): 75 × 14 × 7 *(22.9 × 4.3 × 2.1)*
Main machinery: 1 Caterpillar diesel; 365 hp *(270 kW)*; 1 shaft
Speed, knots: 12
Complement: 7 (1 officer)
Radars: Navigation: Furuno; I-band.

Comment: Acquired in September 1991. Pacific flotilla. ***VERIFIED***

LAND-BASED MARITIME AIRCRAFT

Numbers/Type: 3 CASA C-212 Aviocar.
Operational speed: 190 kt *(353 km/h)*.
Service ceiling: 24,000 ft *(7,315 m)*.
Range: 1,650 n miles *(3,055 km)*.
Role/Weapon systems: Air Force operated coastal patrol aircraft for EEZ protection and anti-smuggling duties. Sensors: APS-128 radar, limited ESM. Weapons: ASW; two Mk 44/46 torpedoes. ASV; two rocket or machine gun pods. ***VERIFIED***

Numbers/Type: 1 Pilatus Britten-Norman Islander.
Operational speed: 150 kt *(280 km/h)*.
Service ceiling: 18,900 ft *(5,760 m)*.
Range: 1,500 n miles *(2,775 km)*.
Role/Weapon systems: Air Force operated coastal surveillance duties. Sensors: Search radar. Weapons: Unarmed. ***VERIFIED***

Papua New Guinea

Country Overview

Papua New Guinea lies north of Australia in the eastern half of New Guinea which it shares with the Indonesian province of Irian Jaya. An Australian-administered UN Trust territory from 1949, it became independent in 1975. Its head of state is the British sovereign, who is represented by a Governor-General. Its many island groups include the Bismarck and Louisiade Archipelagos, the Trobriand Islands, the D'Entrecasteaux Islands and Woodlark Island. Amongst other islands are Bougainville (a nine-year separatist conflict ended in 1997) and Buka. It has a 2,781 n mile coastline. The capital, principal city and port is Port Moresby. An archipelagic state, territorial seas (12 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has also been claimed but the limits have not been fully defined by boundary agreements.

Headquarters Appointments

Commander Defence Forces:
Commodore Peter Ilan, CBE
Director Naval Operations:
Commander Max S Aleale

Bases

Port Moresby (HQ PNGDF and PNGDF Landing Craft Base); Lombrum (Manus)

Prefix to Ships' Names

HMPNGS

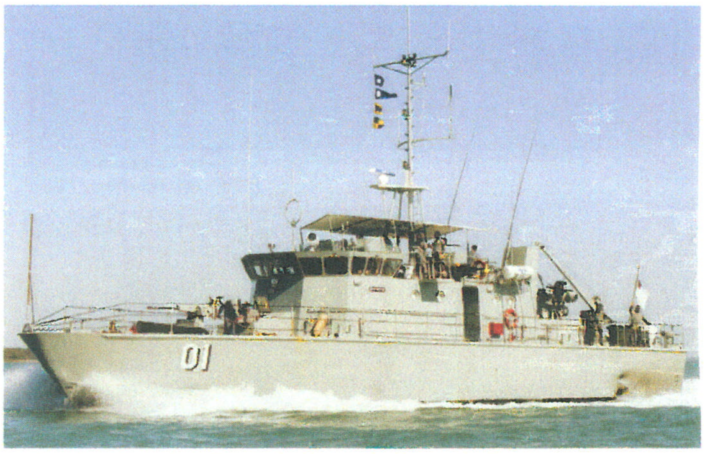
PATROL FORCES

4 PACIFIC CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
TARANGAU	01	Australian Shipbuilding Industries	16 May 1987
DREGER	02	Australian Shipbuilding Industries	31 Oct 1987
SEEADLER	03	Australian Shipbuilding Industries	29 Oct 1988
BASILISK	04	Australian Shipbuilding Industries	1 July 1989

Displacement, tons: 162 full load
Dimensions, feet (metres): 103.3 × 26.6 × 6.9 *(31.5 × 8.1 × 2.1)*
Main machinery: 2 Caterpillar 3516TA diesels; 4,400 hp *(3.3 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 2,500 at 12 kt
Complement: 17 (3 officers)
Guns: 1 Oerlikon GAM-BO1 20 mm. 2—7.62 mm MGs.
Radars: Surface search: Furuno 1011; I-band.

Comment: Contract awarded in 1985 to Australian Shipbuilding Industries (Hamilton Hill, West Australia) under Australian Defence co-operation. These are the first, third, sixth and seventh of the class and some of the few to be armed. All upgraded, during half-life refits in Australia with new radars and navigation support systems in 1997/98. Following the decision by the Australian government to extend the Pacific Patrol Boat project, *Tarangau* underwent a life-extension refit at Gladstone in 2003. Similar refits for *Dreger*, *Seeadler* and *Basilisk* are due in 2004, 2005 and 2006 respectively. ***UPDATED***



TARANGAU *8/2003*, John Mortimer* / 0569236

AUXILIARIES

2 LANDING CRAFT (LSM)

Name	*No*	*Builders*	*Commissioned*
SALAMAUA	31	Walkers Ltd, Maryborough	19 Oct 1973
BUNA	32	Walkers Ltd, Maryborough	7 Dec 1973

Displacement, tons: 310 light; 503 full load
Dimensions, feet (metres): 146 × 33 × 6.5 *(44.5 × 10.1 × 1.9)*
Main machinery: 2 GM diesels; 2 shafts
Speed, knots: 10. **Range, miles:** 3,000 at 10 kt
Complement: 15 (2 officers)
Military lift: 160 tons
Guns: 2—12.7 mm MGs.
Radars: Navigation: Racal Decca RM 916; I-band.

Comment: Transferred from Australia in 1975. Underwent extensive refits 1985-86. Both are still active.

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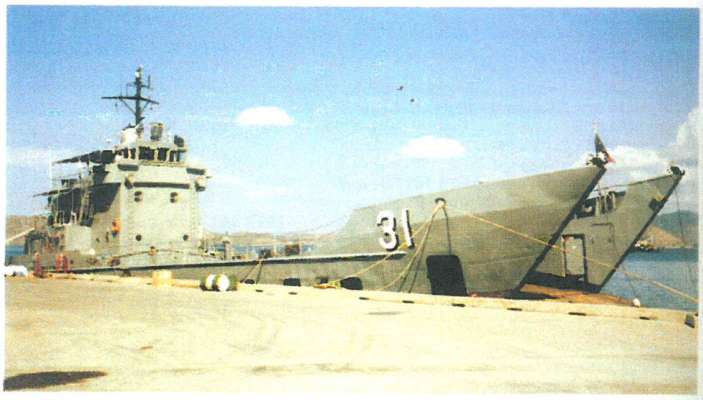
SALAMAUA *12/1990, James Goldrick* / 0081510

Paraguay
ARMADA NACIONAL

Country Overview

The Republic of Paraguay is one of two landlocked countries in South America; Bolivia is the other. With an area of 157,048 square miles, it has borders to the north with Bolivia, to the east with Brazil and to the south with Argentina. There are some 1,500 n miles of internal waterways including the principal rivers, the Pilcomayo, Paraguay and Paraná. Navigable by large ships for much of their length, they link the capital, largest city and principal port, Asunción, with the Rio de la Plata estuary on the Atlantic Ocean. Other ports include Ciudad del Este, Encarnación and Concepción.

Headquarters Appointments

Commander-in-Chief of the Navy:
Rear Admiral Eduardo Lopez Cañete
Chief of Staff:
Rear Admiral Julio Cesar Baez Acosta
Fleet Commander:
Rear Admiral Lorenzo Mengual Herken

Personnel

2004: 3,600 including 300 Coast Guard, 800 marines and 100 naval air

Bases

Main Base: Puerto Sajonia, Asunción
Minor Bases: Base Naval de Bahia Negra (BNBN) (on upper Paraguay river)
Base Naval de Saltos del Guaira (BNSG) (on upper Paraná river)
Base Naval de Ciudad del Este (BNCE) (on Paraná river)
Base Naval de Encarnacion (BNE) (on Paraná river)
Base Naval de Ita-Pirú (BNIP) (on Paraná river)

Training

Specialist training is done with Argentina (Exercise Sirena), Brazil (Exercise Ninfa) and US (Exercise Unitas).

Marine Corps

BIM 1:	Puerto Rosario
BIM 2:	Puerto Vallemi
BIM 3:	Asunción
BIM 5:	Bahia Negra Detachments at Pozo Hondo and Ita-Pirú
BIM 8:	Saltos del Guairá Detachments at Ciudad del Este and Encarnación

Naval Aviation

Fixed Wing	Asunción International Airport
Helicopters	Puerto Sajonia

Coast Guard

Prefectura General Naval

PATROL FORCES

1 RIVER DEFENCE VESSEL (PGR)

Name	*No*	*Builders*	*Commissioned*
PARAGUAY	C 1	Odero, Genoa	May 1931

Displacement, tons: 636 standard; 865 full load
Dimensions, feet (metres): 231 × 35 × 5.3 *(70 × 10.7 × 1.7)*
Main machinery: 2 boilers; 2 Parsons turbines; 3,800 hp *(2.83 MW)*; 2 shafts
Speed, knots: 17. **Range, miles:** 1,700 at 16 kt
Complement: 86
Guns: 4—4.7 in *(120 mm)* (2 twin). 3—3 in *(76 mm)*. 2—40 mm.
Mines: 6.
Radars: Navigation *(Paraguay)*; I-band.

Comment: Refitted in 1975. Has 0.5 in side armour plating and 0.3 in on deck. Still in restricted operational service with boiler problems. Plans to re-engine with diesels have not yet been implemented. Based at Asunción. Gun tubs on either side of bridge can be fitted with single 20 mm guns.

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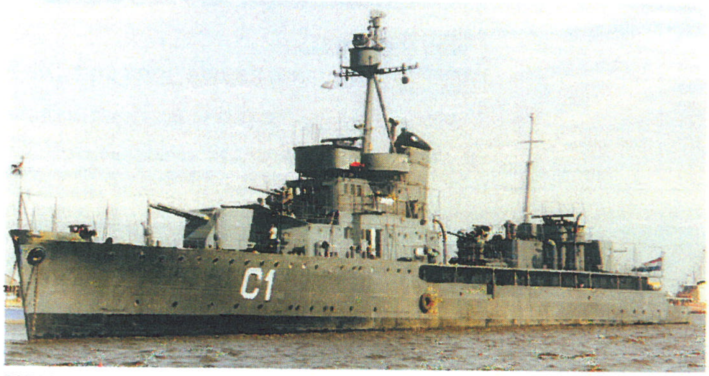
PARAGUAY *5/2000, Hartmut Ehlers* / 0105191

PARAGUAY *5/2000, Hartmut Ehlers* / 0105192

2 BOUCHARD CLASS (PATROL SHIPS) (PBR)

Name	*No*	*Builders*	*Commissioned*
NANAWA (ex-*Bouchard* M 7)	P 02 (ex-P 01, ex-M 1)	Rio Santiago Naval Yard	27 Jan 1937
TENIENTE FARINA (ex-*Py* M 10)	P 04 (ex-P 03, ex-M 3)	Rio Santiago Naval Yard	1 July 1939

Displacement, tons: 450 standard; 620 normal; 650 full load
Dimensions, feet (metres): 197 × 24 × 8.5 *(60 × 7.3 × 2.6)*
Main machinery: 2 sets MAN 2-stroke diesels; 2,000 hp(m) *(1.47 MW)*; 2 shafts
Speed, knots: 16. **Range, miles:** 6,000 at 12 kt
Complement: 70
Guns: 4 Bofors 40 mm/60 (2 twin). 2—12.7 mm MGs.
Mines: 1 rail.
Radars: Navigation: I-band.

Comment: Former Argentinian minesweepers of the 'Bouchard' class. Launched on 20 March 1936 and 31 March 1938 respectively. Transferred from the Argentine Navy to the Paraguayan Navy; *Nanawa* recommissioned 14 March 1964; *Teniente Farina* 6 May 1968. Based at Asunción.

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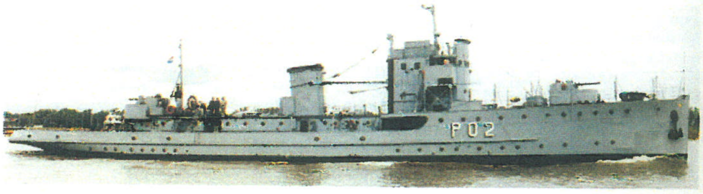
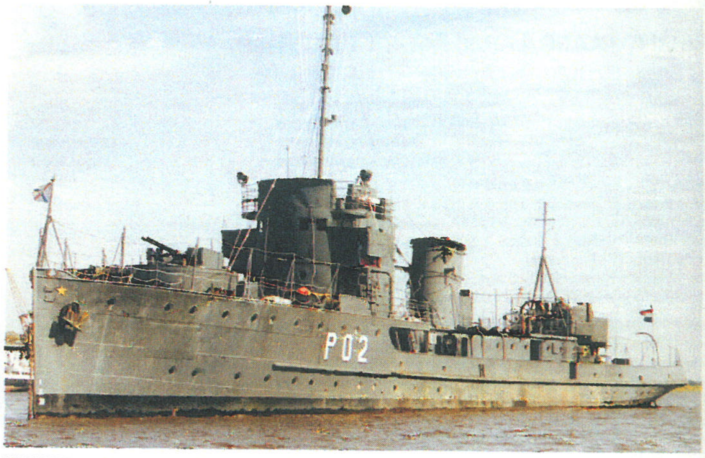

NANAWA *6/1990, Paraguay Navy* / 0081514


NANAWA *5/2000, Hartmut Ehlers* / 0105194

1 ITAIPÚ CLASS (RIVER DEFENCE VESSEL) (PBR)

Name	*No*	*Builders*	*Commissioned*
ITAIPÚ	P 05 (ex-P 2)	Arsenal de Marinha, Rio de Janeiro	2 Apr 1985

Displacement, tons: 365 full load
Dimensions, feet (metres): 151.9 × 27.9 × 4.6 *(46.3 × 8.5 × 1.4)*
Main machinery: 2 MAN V6V16/18TL diesels; 1,920 hp(m) *(1.41 MW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 6,000 at 12 kt
Complement: 40 (9 officers) plus 30 marines
Guns: 1 Bofors 40 mm/60. 2—81 mm mortars. 4—12.7 mm MGs.
Radars: Navigation: I-band.
Helicopters: Platform for 1 HB 350B or equivalent.

Comment: Ordered late 1982. Launched 16 March 1984. Same as Brazilian 'Roraima' class. Has some hospital facilities. Based at Asunción.

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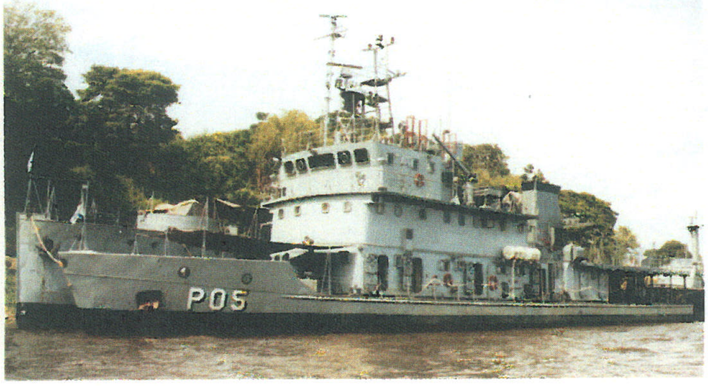

ITAIPÚ *4/2003*, Hartmut Ehlers* / 0567473

1 RIVER PATROL CRAFT (PBR)

Name	*No*	*Builders*	*Commissioned*
CAPITÁN CABRAL (ex-*Triunfo*)	P 01 (ex-P 04, ex-A 1)	Werf-Conrad, Haarlem	1908

Displacement, tons: 180 standard; 206 full load
Dimensions, feet (metres): 107.2 × 23.5 × 5.8 *(32.7 × 7.2 × 1.7)*
Main machinery: 1 Caterpillar 3408 diesel; 360 hp *(269 kW)*; 1 shaft
Speed, knots: 9
Complement: 25
Guns: 1 Bofors 40 mm/60. 2 Oerlikon 20 mm. 2—12.7 mm MGs.
Radars: Navigation: I-band.

Comment: Former tug. Launched in 1907. Still in excellent condition. Vickers guns were replaced and a diesel engine fitted by Arsenal de Marina in 1984. Based at Asunción.

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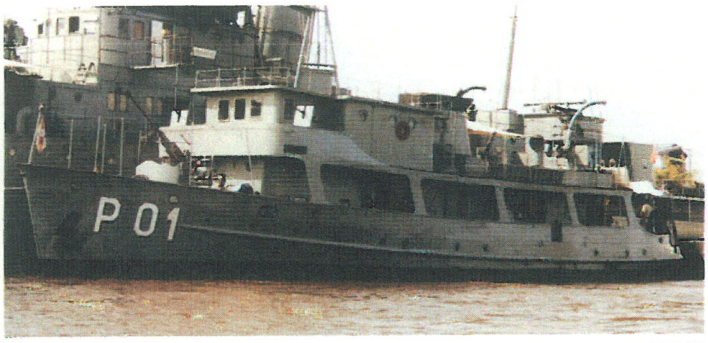

CAPITÁN CABRAL *4/2003*, Hartmut Ehlers* / 0567474

2 MODIFIED HAI OU CLASS (PBF)

CAPITÁN ORTIZ P 06 **TENIENTE ROBLES** P 07

Displacement, tons: 47 full load
Dimensions, feet (metres): 70.8 × 18 × 3.3 *(21.6 × 5.5 × 1)*
Main machinery: 2 MTU 12V 331 TC82 diesels; 2,605 hp(m) *(1.92 MW)* sustained; 2 shafts
Speed, knots: 36. **Range, miles:** 700 at 32 kt
Complement: 10
Guns: 1—20 mm Type 75. 2—12.7 mm MGs.
Radars: Surface search: I-band.

Comment: Developed by Taiwan from 'Dvora' class hulls and presented as a gift in 1996. It is possible that one of these craft was one of the two original Dvora hulls acquired by Taiwan.

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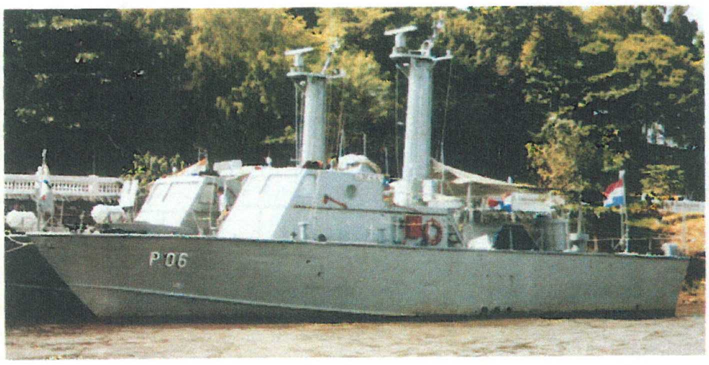

CAPITÁN ORTIZ *4/2003*, Hartmut Ehlers* / 0567475

2 RIVER PATROL CRAFT (PBR)

YHAGUY P 08 **TEBICUARY** P 09

Displacement, tons: 25
Dimensions, feet (metres): 52.8 × 14.8 × 5.3 *(16.1 × 4.5 × 1.6)*
Main machinery: Caterpillar diesel; 800 hp *(596 kW)*
Speed, knots: 40
Radars: Surface search: Furuno; I-band.

Comment: Two former Taiwan coast guard patrol boats transferred 23 June 1999. Capable of 40 kt and armed with two 7.26 mm MGs. Two sister craft transferred to Gambia in 1999.

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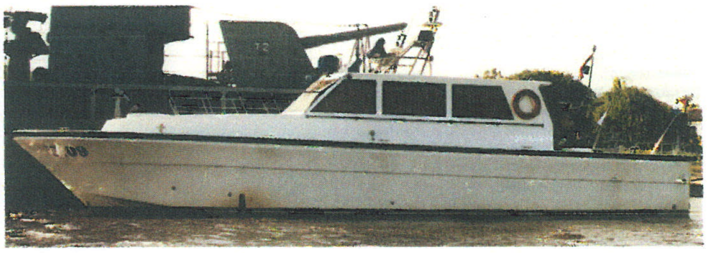


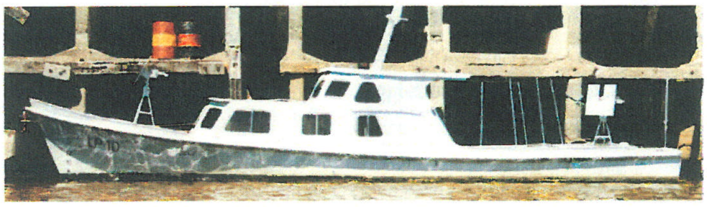
TEBICUARY *4/2003*, Hartmut Ehlers* / 0567476

5 RIVER PATROL CRAFT (PBR)

LP 7-11 (ex-P 7-11)

Displacement, tons: 18 full load
Dimensions, feet (metres): 48.2 × 10.2 × 4.6 *(14.7 × 3.1 × 1.4)*
Main machinery: 2 GM 6-71 diesels; 340 hp *(254 kW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 240 at 12 kt
Complement: 4
Guns: 2—12.7 mm MGs.

Comment: Built by Arsenal de Marina, Paraguay. *LP 7* launched March 1989, *LP 8-9* in February 1990 and *LP 10-11* in October 1991. The programme was then aborted. ***UPDATED***



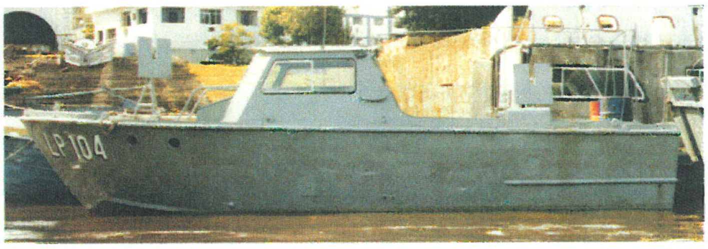
LP 10 *4/2003*, Hartmut Ehlers* / 0567477

5 TYPE 701 CLASS (PBR)

LP 101 **LP 102** **LP 103** **LP 104** **LP 106**

Displacement, tons: 15 full load
Dimensions, feet (metres): 42.5 × 12.8 × 3 *(13 × 3.9 × 0.9)*
Main machinery: 2 diesels; 500 hp *(373 kW)*; 2 shafts
Speed, knots: 20
Complement: 7
Guns: 2—12.7 mm MGs.

Comment: Built by Sewart in 1970. Delivered 1967-71. ***UPDATED***



LP 104 *4/2003*, Hartmut Ehlers* / 0567478

LAND-BASED MARITIME AIRCRAFT

Notes: The Naval Aviation inventory includes four fixed wing aircraft (one Cessna Centurion 210M, two Cessna 310 and one Cessna 410) in addition to the two Helibras Esquilo. Four further Robinson R44 helicopters have not been ordered, as previously reported.

Numbers/Type: 2 Helibras HB 350B Esquilo.
Operational speed: 125 kt *(232 km/h)*.
Service ceiling: 10,000 ft *(3,050 m)*.
Range: 390 n miles *(720 km)*.
Role/Weapon systems: Support helicopter for riverine patrol craft. Delivered in July 1985.

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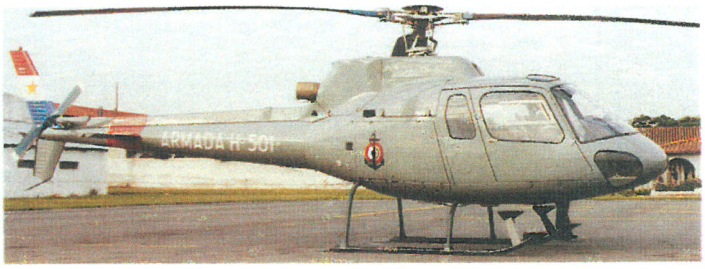

ESQUILO *5/2000, Hartmut Ehlers* / 0105198

AUXILIARIES

Notes: In addition to the craft listed, there are three LCVPs (EDVP 1-3), two service craft (Arsenal 1 and 2) one utility launch *(Teniente Cabrera)*, one suction dredger *(Teniente Oscar Carreras Saguier)*, one floating crane *(Grua Flotante)* and one floating dry dock *(Dique Flotante* (ex-AFDL 26)*)*.

1 TRAINING SHIP/TRANSPORT (AK/AX)

Name	*No*	*Builders*	*Commissioned*
GUARANI	—	Tomas Ruiz de Velasco, Bilbao	Feb 1968

Measurement, tons: 714 gross; 1,047 dwt
Dimensions, feet (metres): 240.3 × 36.3 × 11.9 *(73.6 × 11.1 × 3.7)*
Main machinery: 1 MWM diesel; 1,300 hp(m) *(956 kW)*; 1 shaft
Speed, knots: 13
Complement: 21
Cargo capacity: 1,000 tons

Comment: Refitted in 1975 after a serious fire in the previous year off the coast of France. Used to spend most of her time acting as a freighter on the Asunción-Europe run, commercially operated for the Paraguayan Navy. Since 1991 she has only been used for river service and for training cruises Asunción-Montevideo.

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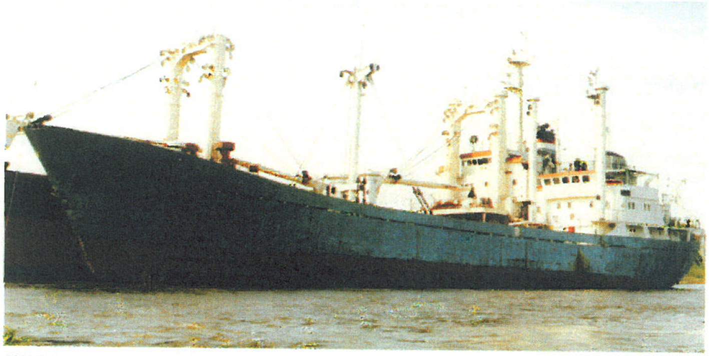

GUARANI *4/2003*, Hartmut Ehlers* / 0567480

1 HYDROGRAPHIC LAUNCH (YGS)

SUBOFICIAL ROGELIO LESME LH 1

Displacement, tons: 16 full load
Dimensions, feet (metres): 65.5 × 10.2 × 2.6 *(14.7 × 3.1 × 0.8)*
Main machinery: 1 Mercedes-Benz diesel; 100 hp *(74 kW)*; 1 shaft
Speed, knots: 13
Complement: 5

Comment: Built in 1958.

NEW ENTRY

1 PRESIDENTIAL YACHT (MYAC)

3 de FEBRERO (ex-*26 de Febrero*)

Displacement, tons: 98.5 full load
Dimensions, feet (metres): 92.2 × 19.7 × 5.2 *(28.1 × 6.0 × 1.6)*
Main machinery: 2 Rolls Royce; 517 hp *(386 kW)*; 2 shafts
Speed, knots: 11. **Range, miles:** 1,350 at 11 kt
Complement: 6 + 8 guests

Comment: Built by Naval Arsenal Asunción and launched in 1972. Entered service in 1982.

NEW ENTRY

1 RIVER TRANSPORT (AKL)

TENIENTE HERREROS (ex-*Presidente Stroessner*) T 1

Displacement, tons: 420 full load
Dimensions, feet (metres): 124 × 29.5 × 7.2 *(37.8 × 9 × 2.2)*
Main machinery: 2 MWM diesels; 330 hp(m) *(243 kW)*
Speed, knots: 10
Complement: 10
Cargo capacity: 120 tons

Comment: Built by Arsenal de Marina in 1964.

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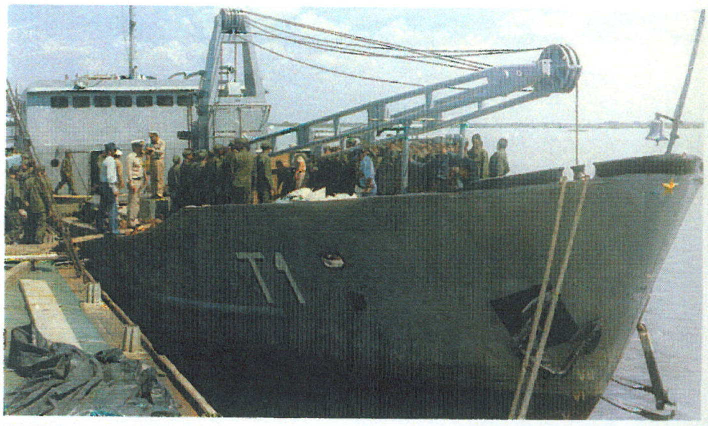

TENIENTE HERREROS *5/1991, Paraguay Navy* / 0081518

TUGS

4 TUGS (YTM/YTL)

TRIUNFO R 4 (ex-YTL 567)
ANGOSTURA R 5 (ex-YTL 211)
STELLA MARIS R 6
ESPERANZA R 7

Displacement, tons: 70 full load
Dimensions, feet (metres): 65 × 16.4 × 7.5 *(19.8 × 5 × 2.3)*
Main machinery: 1 Caterpillar 3408 diesel; 360 hp *(269 kW)*; 1 shaft
Speed, knots: 9
Complement: 5

Comment: Harbour tugs transferred under MAP in the 1960s and 1970s. Details given are for R 4 and R 5. The others are smaller 20 ton vessels.

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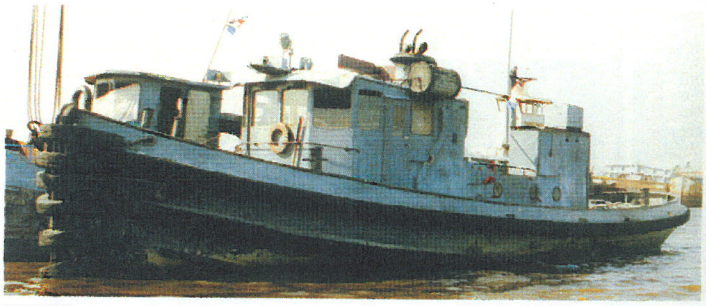
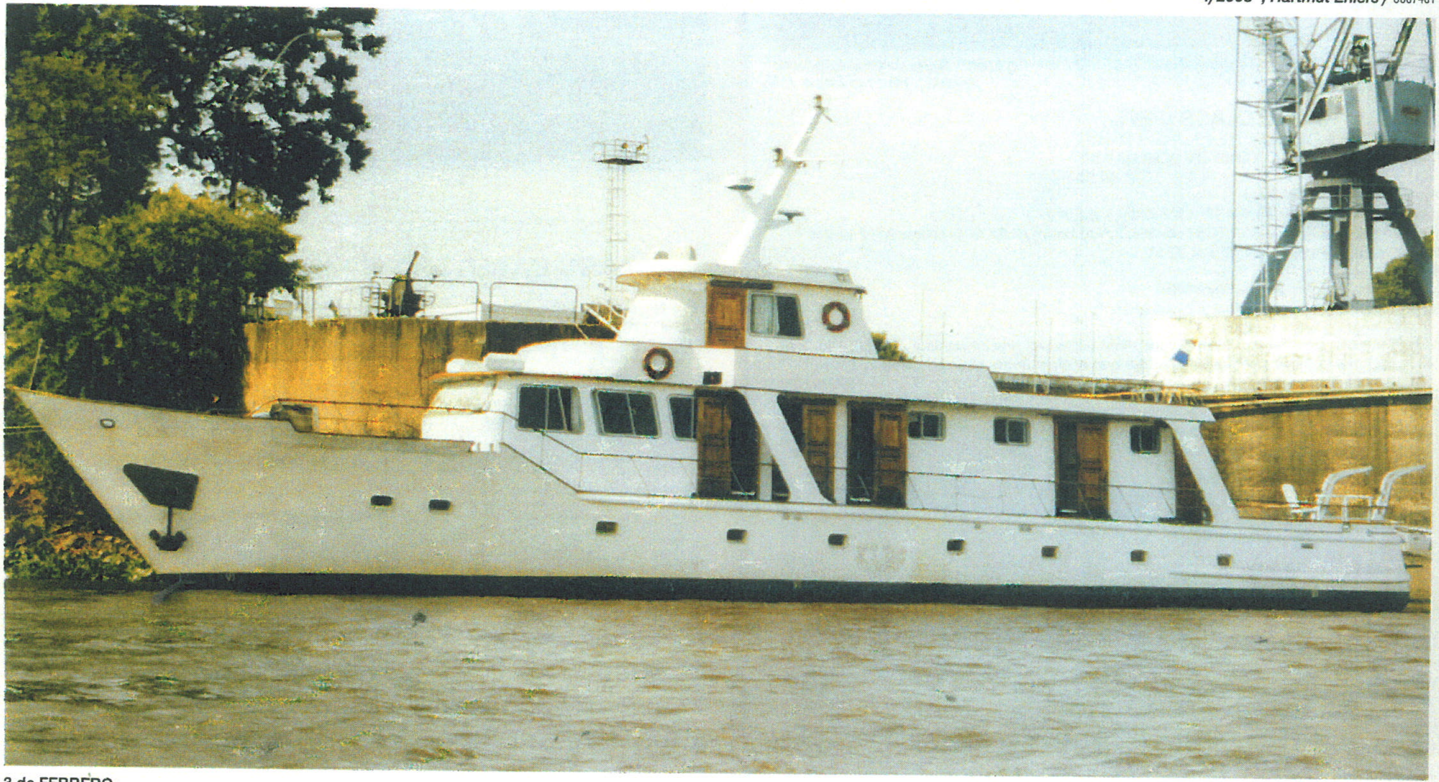


TRIUNFO *4/2003*, Hartmut Ehlers* / 0567481



3 de FEBRERO *4/2003*, Hartmut Ehlers* / 0567479

Peru
ARMADA PERUANA

Country Overview

The Republic of Peru is situated in western South America. With an area of 496,225 square miles it has borders to the north with Ecuador and Colombia, to the east with Brazil and Bolivia and to the south with Chile. It has a coastline of 1,303 n miles with the Pacific Ocean. Lima is capital and largest city and is served by the port of Callao. There are further ports at Salaverry, Pacasmayo, Paita, and San Juan. Inland, Iquitos is linked to the Atlantic Ocean by the Amazon River. Lake Titicaca is also an important waterway. Peru has not claimed an EEZ but is one of a few coastal states which claims a 200 n mile territorial sea.

Headquarters Appointments

Commander of the Navy:
Admiral Ricardo Arbocco Liceti
Chief of the Naval Staff:
Vice Admiral José Luis Noriega Lores
Inspector General:
Rear Admiral Jorge Ampuero Trabuco
Chief of Naval Operations (Pacific):
Vice Admiral Frank Boyle Alvarado
Flag Officer Commanding Marines:
Rear Admiral Carlos Tubino Arias Schreiber
Commander, Naval Aviation:
Rear Admiral José Quevedo de Lama
Commander, Submarines:
Rear Admiral Luis Ego-Aguirre Villacorta

Personnel

(a) 2004: 25,000 (2,500 officers)
(b) 2 years' national service

Bases and Organisation

There are Five Naval Zones: 1st Piura, 2nd Callao, 3rd Arequipa, 4th Puerto Maldonado, 5th Iquitos
Pacific Naval Force (HQ Callao)
Amazon River Force (HQ Iquitos)
Lake Titicaca Patrol Force (HQ at Puno)
Callao-Main naval base; dockyard with shipbuilding capacity, 1 dry dock, 3 floating docks, 1 floating crane; training schools
Iquitos-River base for Amazon Flotilla; small building yard, repair facilities, floating dock
La Punta (naval academy), Chimbote, Paita, Talara, Puno (Lake Titicaca), Madre de Dios (river base), Piura, El Salto, Bayovar, Pimental, Pacasmayo, Salaverry, Mollendo, Matarani, Ilo, Puerto Maldonado, Inapari, Pucallpa and El Estrecho.

Marines

The Peruvian Marines comprise 3,500 men commanded by a Rear Admiral and armed with 122 mm howitzer and 120 mm mortar. Headquarters at Ancon. The force includes a Marine Brigade, the Amphibious Support Group and Marine Special Forces. The Marine Brigade has three battalions: First Battalion — Guarnición de Marina; Second Battalion — Guardia Chalaca; Third Battalion (including Fire Support Group and Engineer Support company) — Vencedores de Punta Melpelo. The Amphibious Support Group is composed of the Vehicles and Motor Transport battalions. The Marines Special Forces include a Commando company and anti-terrorist unit. Additionally, the Peruvian Marines have jungle battalions at Iquitos and Pucallpa.

Prefix to Ships' Names

BAP (Buque Armada Peruana). PC (Coastal Patrol). PL (Lake Patrol). PP (Port Patrol). PF (River Patrol).

Coast Guard

A separate service set up in 1975 with a number of light forces transferred from the Navy.

PENNANT LIST

Submarines

SS 31	Angamos
SS 32	Antofagasta
SS 33	Pisagua
SS 34	Chipana
SS 35	Islay
SS 36	Arica

Cruisers

CLM 81	Almirante Grau

Destroyers

DM 74	Ferre

Frigates

FM 51	Carvajal
FM 52	Villavisencio
FM 53	Montero
FM 54	Mariategui

Patrol Forces

CF 11	Amazonas
CF 12	Loreto
CF 13	Marañon
CF 14	Ucayali
CM 21	Velarde
CM 22	Santillana
CM 23	De los Heros
CM 24	Herrera
CM 25	Larrea
CM 26	Sanchez Carrillon

Amphibious Forces

DT 141	Paita
DT 142	Pisco
DT 143	Callao
DT 144	Eten

Survey Ships

AH 171	Carrasco
AH 172	Stiglich
AEH 174	Macha
AEH 175	Carrillo
AEH 176	Melo

Auxiliaries

ABA 332	Barcaza Cisterna de Agua
ABH 302	Morona
ABH 306	Puno
ACA 111	Calayeras
ACP 118	Noguera
ACP 119	Gauden
ARB 120	Mejia
ARB 121	Huerta
ARB 123	Guardian Rios
ARB 126	Dueñas
ARB 128	Olaya
ARB 129	Selendon
ATC 131	Mollendo
ATP 152	Talara
ATP 153	Lobitos
ATP 157	Supe
ART 322	San Lorenzo

SUBMARINES

Notes: Replacement of the current submarine flotilla is under consideration.

6 ANGAMOS/ISLAY CLASS (TYPES 209 and 1200) (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ANGAMOS (ex-*Casma*)	SS 31	Howaldtswerke, Kiel	15 July 1977	31 Aug 1979	19 Dec 1980
ANTOFAGASTA	SS 32	Howaldtswerke, Kiel	3 Oct 1977	19 Dec 1979	20 Feb 1981
PISAGUA	SS 33	Howaldtswerke, Kiel	15 Aug 1978	19 Oct 1980	12 July 1983
CHIPANA	SS 34	Howaldtswerke, Kiel	1 Nov 1978	19 May 1981	20 Sep 1982
ISLAY	SS 35	Howaldtswerke, Kiel	15 Mar 1971	11 Oct 1973	29 Aug 1974
ARICA	SS 36	Howaldtswerke, Kiel	1 Nov 1971	5 Apr 1974	21 Jan 1975

Displacement, tons: 1,185 surfaced; 1,290 dived
Dimensions, feet (metres): 183.7 × 20.3 × 17.9 *(56 × 6.2 × 5.5)*
Main machinery: Diesel-electric; 4 MTU 12V 493 AZ80 GA31L diesels; 2,400 hp(m) *(1.76 MW)* sustained; 4 Siemens alternators; 1.7 MW; 1 Siemens motor; 4,600 hp(m) *(3.38 MW)* sustained; 1 shaft
Speed, knots: 11 surfaced/snorting; 21.5 dived
Range, miles: 240 at 8 kt
Complement: 35 (5 officers) *(Islay* and *Arica)*; 31 (others)

Torpedoes: 8—21 in *(533 mm)* tubes. 14 AEG SST4; wire-guided; active/passive homing to 12/28 km *(6.5/15 n miles)* at 35/23 kt; warhead 260 kg. Swim-out discharge.
Countermeasures: ESM: Radar warning.
Weapons control: Sepa Mk 3 or Signaal Sinbad M8/24 (*Angamos* and *Antofagasta*).
Radars: Surface search: Thomson-CSF Calypso; I-band.
Sonars: Atlas Elektronik CSU 3; active/passive search and attack; medium/high frequency.
Thomson Sintra DUUX 2C or Atlas Elektronik PRS 3; passive ranging.

Programmes: Two Type 209 (SS 35-36) ordered 1969. Two further Type 209 boats (SS 31-32) ordered 12 August 1976. Two Type 1200 (SS 33-34) ordered 21 March 1977.
Designed by Ingenieurkontor, Lübeck for construction by Howaldtswerke, Kiel and sale by Ferrostaal, Essen all acting as a consortium.

Modernisation: Sepa Mk 3 fire control fitted progressively from 1986. A programme to replace diesel generators has been reported but not confirmed. *Angamos* reported to have been modernised with new batteries, sonar and EW suite.
Structure: A single-hull design with two ballast tanks and forward and after trim tanks. Fitted with snort and remote machinery control. The single screw is slow revving, very high-capacity batteries with GRP lead-acid cells and battery cooling-by Wilh Hagen and VARTA. Fitted with two periscopes and Omega receiver. Foreplanes retract. Diving depth, 250 m *(820 ft)*.
Operational: Endurance, 50 days. Four are in service, two in refit or reserve at any one time. *Angamos* took part in multinational exercises in mid-2003 during which she achieved 126 days at sea.
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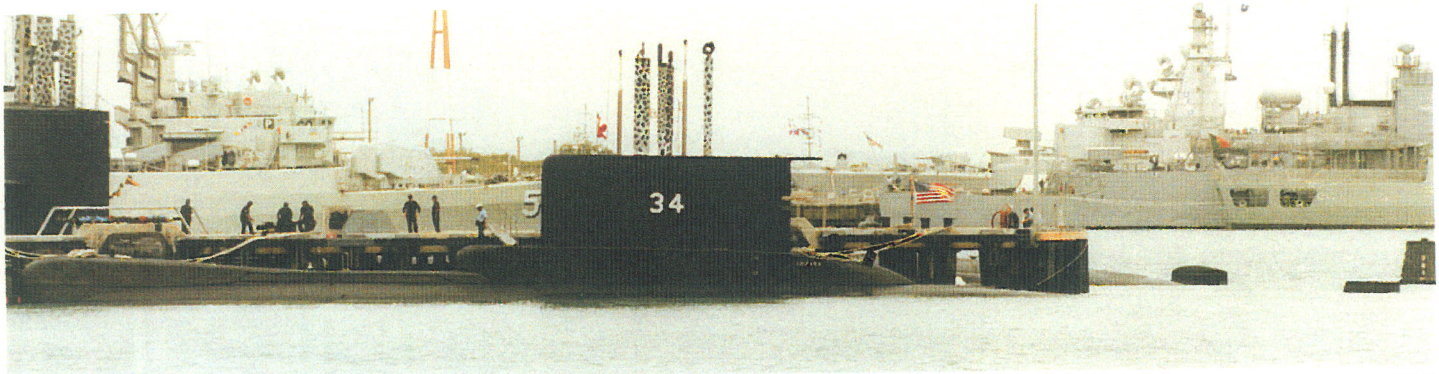

CHIPANA

10/1997 / 0052694

CRUISERS

1 DE RUYTER CLASS (CG/CLM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ALMIRANTE GRAU (ex-*De Ruyter*)	CLM 81	Wilton-Fijenoord, Schiedam	5 Sep 1939	24 Dec 1944	18 Nov 1953

Displacement, tons: 12,165 full load
Dimensions, feet (metres): 624.5 × 56.7 × 22 *(190.3 × 17.3 × 6.7)*
Main machinery: 4 Werkspoor-Yarrow boilers; 2 De Schelde-Parsons turbines; 85,000 hp *(62.5 MW)*; 2 shafts
Speed, knots: 32. **Range, miles:** 7,000 at 12 kt
Complement: 953 (49 officers)

Missiles: SSM: 8 OTO Melara/Matra Otomat Mk 2 (TG 1) ❶; active radar homing to 80 km *(43.2 n miles)* at 0.9 Mach; warhead 210 kg; sea-skimmer for last 4 km *(2.2 n miles)*.
Guns: 8 Bofors 6 in *(152 mm)*/53 (4 twin) ❷; 15 rds/min to 26 km *(14 n miles)*; weight of shell 46 kg.
4 Otobreda 40 mm/70 (2 twin) ❸; 120 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
4 Bofors 40 mm/70 ❹; 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 0.96 kg.
Countermeasures: Decoys: 2 Dagaie and 1 Sagaie chaff launchers.
Combat data systems: Signaal Sewaco PE SATCOM ❺.
Weapons control: 2 Lirod 8 optronic directors ❻.
Radars: Air search: Signaal LW08 ❼; D-band.
Surface search/target indication: Signaal DA08 ❽; E/F-band.
Navigation: Racal Decca 1226; I-band.
Fire control: Signaal WM25 ❾; I/J-band (for 6 in guns); range 46 km *(25 n miles)*.
Signaal STIR ❿; I/J/K-band; range 140 km *(76 n miles)* for 1 m² target.

Programmes: Transferred by purchase from Netherlands 7 March 1973 and commissioned to Peruvian Navy 23 May 1973.
Modernisation: Taken in hand for a two and a half year modernisation at Amsterdam Dry Dock Co in March 1985. This was to include reconditioning of mechanical and electrical engineering systems, fitting of SSM and SAM, replacement of electronics and fitting of one CSEE Sagaie and two Dagaie launchers. In 1986 financial constraints limited the work but much had been done to update sensors and fire-control equipment. Sailed for Peru 23 January 1988 without her secondary gun armament, which was completed at Sima Yard, Callao. The plan to retrofit Exocets from the 'Daring' class to replace the Otomat launchers, appears to have been abandoned due to lack of funding. Sonar has been removed. SATCOM fitted aft.
Operational: Expected to be decommissioned in 2005.

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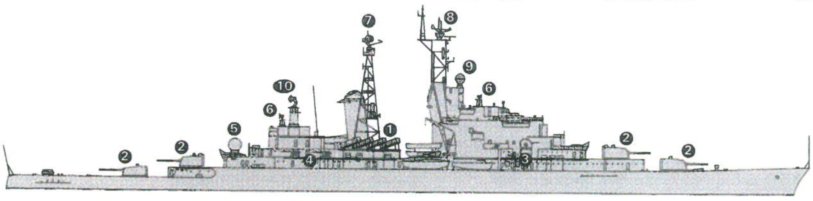

ALMIRANTE GRAU

(Scale 1 : 1,800), Ian Sturton / 0126352

ALMIRANTE GRAU

1/1999 / 0081521

DESTROYERS

1 DARING CLASS (DDGH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
FERRÉ (ex-*Decoy*)	DM 74	Yarrow, Glasgow	22 Sep 1946	29 Mar 1949	28 Apr 1953

Displacement, tons: 2,800 standard; 3,600 full load
Dimensions, feet (metres): 390 × 43 × 18 *(118.9 × 13.1 × 5.5)*
Main machinery: 2 Foster-Wheeler boilers; 650 psi *(45.7 kg/cm²)*; 850°F *(454°C)*; 2 English Electric turbines; 54,000 hp *(40 MW)*; 2 shafts
Speed, knots: 32. **Range, miles:** 3,000 at 20 kt
Complement: 297

Missiles: SSM: 8 Aerospatiale MM 38 Exocet ❶; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 6 (3 twin) Vickers 4.5 in *(114 mm)*/45 Mk 6 ❷; 20 rds/min to 19 km *(10.4 n miles)*; weight of shell 25 kg.
4 Breda 40 mm/70 (2 twin) ❸; 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
Radars: Air/surface search: Plessey AWS 1 ❹; E/F-band; range 110 km *(60 n miles)*.
Surface search: Racal Decca TM 1226; I-band.
Fire control: Selenia RTN 10X ❺; I/J-band.

Helicopters: Platform only.

Programmes: Purchased from UK in 1969 and refitted by Cammell Laird, Birkenhead.
Modernisation: A helicopter deck was fitted in the 1970s.
Operational: One of the class deleted in 1993. Expected to be decommissioned in 2004.

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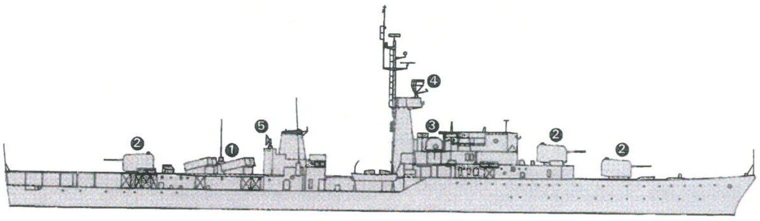


FERRÉ

(Scale 1 : 1,200), Ian Sturton / 0126349

FERRÉ

2000, Peruvian Navy / 0105205

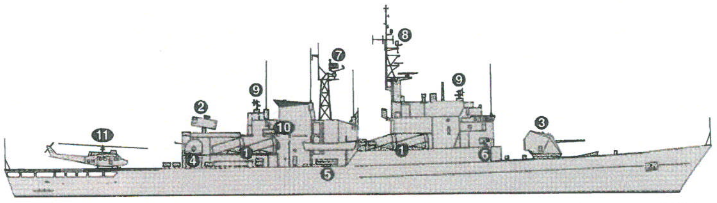
FRIGATES

4 + 2 (2) CARVAJAL (LUPO) CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
CARVAJAL	FM 51	Fincantieri, Riva Trigoso	8 Aug 1974	17 Nov 1976	5 Feb 1979
VILLAVISENCIO	FM 52	Fincantieri, Riva Trigoso	6 Oct 1976	7 Feb 1978	25 June 1979
MONTERO	FM 53	SIMA, Callao	Oct 1978	8 Oct 1982	25 July 1984
MARIATEGUI	FM 54	SIMA, Callao	1979	8 Oct 1984	10 Oct 1987
PALACIOS (ex-*Lupo*)	– (ex-F 564)	Fincantieri, Riva Trigoso	11 Oct 1974	29 July 1976	12 Sep 1977
AGUIRRE (ex-*Orsa*)	– (ex-F 567)	Fincantieri, Muggiano	1 Aug 1977	1 Mar 1979	1 Mar 1980

Displacement, tons: 2,208 standard; 2,500 full load
Dimensions, feet (metres): 371.3 × 37.1 × 12.1 *(113.2 × 11.3 × 3.7)*
Main machinery: CODOG; 2 GE/Fiat LM 2500 gas turbines; 50,000 hp *(37.3 MW)* sustained; 2 GMT A 230.20 M diesels; 8,000 hp(m) *(5.88 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 35. **Range, miles:** 3,450 at 20.5 kt
Complement: 185 (20 officers)

Missiles: SSM: 8 OTO Melara/Matra Otomat Mk 2 (TG 1) ①; active radar homing to 80 km *(43.2 n miles)* at 0.9 Mach; warhead 210 kg; sea-skimmer for last 4 km *(2.2 n miles)*.
SAM: Selenia Elsag Albatros octuple launcher ②; 8 Aspide; semi-active radar homing to 13 km *(7 n miles)* at 2.5 Mach; height envelope 15-5,000 m *(49.2-16,405 ft)*; warhead 30 kg.
An SA-N-10 launcher (MPG-86) may be fitted on the stern.
Guns: 1 OTO Melara 5 in *(127 mm)*/54 ③; 45 rds/min to 16 km *(8.7 n miles)*; weight of shell 32 kg.
4 Breda 40 mm/70 (2 twin) ④; 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
Torpedoes: 6—324 mm ILAS (2 triple) tubes ⑤. Whitehead A244; anti-submarine; active/passive homing to 7 km *(3.8 n miles)* at 33 kt; warhead 34 kg (shaped charge).
Countermeasures: Decoys: 2 Breda 105 mm SCLAR 20-barrelled trainable launchers ⑥; multipurpose; chaff to 5 km *(2.7 n miles)*; illuminants to 12 km *(6.6 n miles)*; HE bombardment.
ESM: Elettronica Lambda; intercept.
Combat data systems: Selenia IPN-10 action data automation.
Weapons control: 2 Elsag Mk 10 Argo with NA-21 directors. Dardo system for 40 mm.



MARIATEGUI (Scale 1 : 1,200), Ian Sturton / 0105275

Radars: Air search: Selenia RAN 10S (FM 52-54) ⑦; E/F-band.
Surface search: Selenia RAN 11LX ⑧; D/I-band. Signaal LW 08 (FM 51); D-band.
Navigation: SMA 3 RM 20R; I-band.
Fire control: 2 RTN 10X ⑨; I/J-band.
2 RTN 20X ⑩; I/J-band (for Dardo).
Sonars: EDO 610E; hull-mounted; active search and attack; medium frequency.

Helicopters: 1 Agusta AB 212ASW ⑪. 1 Agusta ASH-3D Sea King (deck only) (FM 51 and 54).

Programmes: *Montero* and *Mariategui* were the first major warships to be built on the Pacific Coast of South America, although some equipment was provided by Fincantieri. Subject to final contract, *Palacios* and *Aguirre* to be transferred in late 2004 , without ammunition, missiles and helicopters, following eight-month refits at Fincantieri, Muggiano. Two further decommissioned 'Lupo' class (possibly *Sagittario* and *Perseo*) may be similarly transferred at a later date.
Modernisation: FM 51 and FM 54 have had flight deck extensions in order to operate Sea Kings from the deck although they cannot be stowed in the hangar. It is reported that modernisation of the propulsion systems is also under consideration SA-N-10 (MPG-86) may be fitted on the sterns of two ships. LW 08 replaced RAN 10S in FM 51 in 2003.
Structure: FM 51-54 differ from those built for Italian service by having a fixed hangar and higher 40 mm mounts. The SAM system is also different. The ships were commissioned with a step-down from the flight deck to the stern although this has been modified in FM 51 and 54.
Operational: Helicopter provides an over-the-horizon targeting capability for SSM. HIFR facilities fitted in 1989 allow refuelling of Sea King helicopters.

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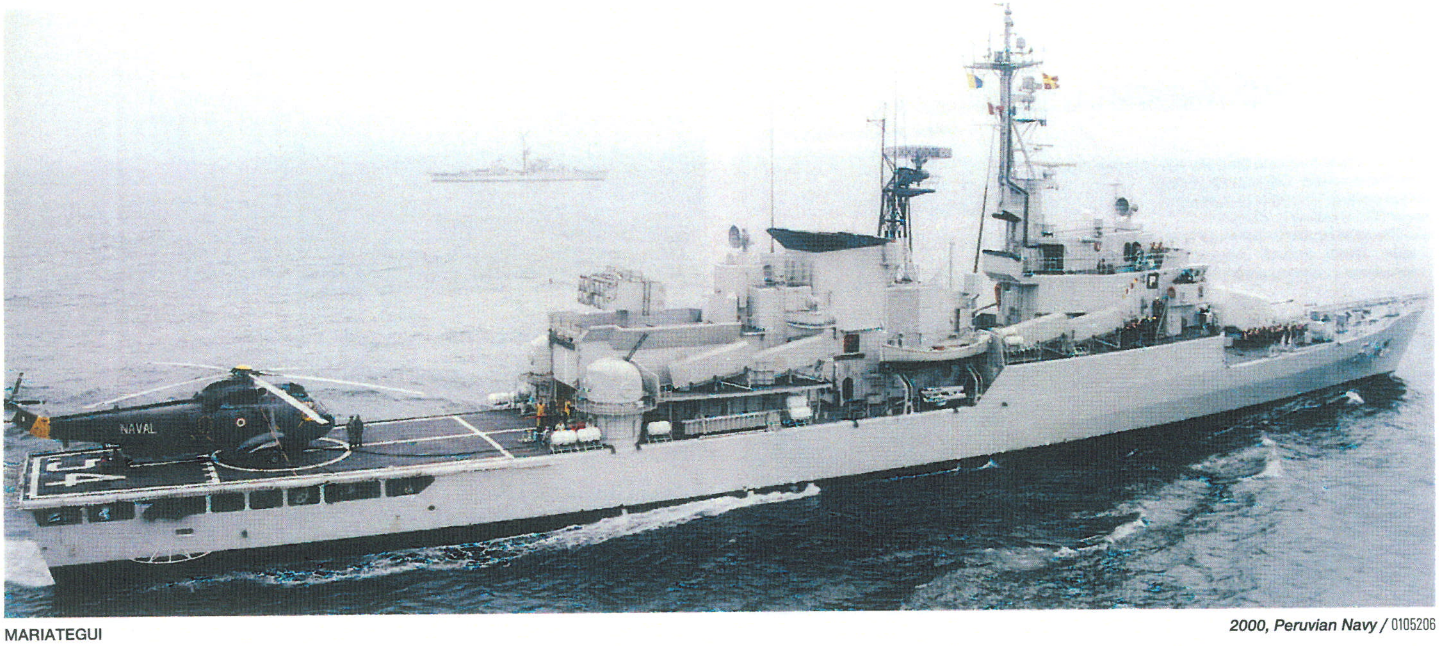
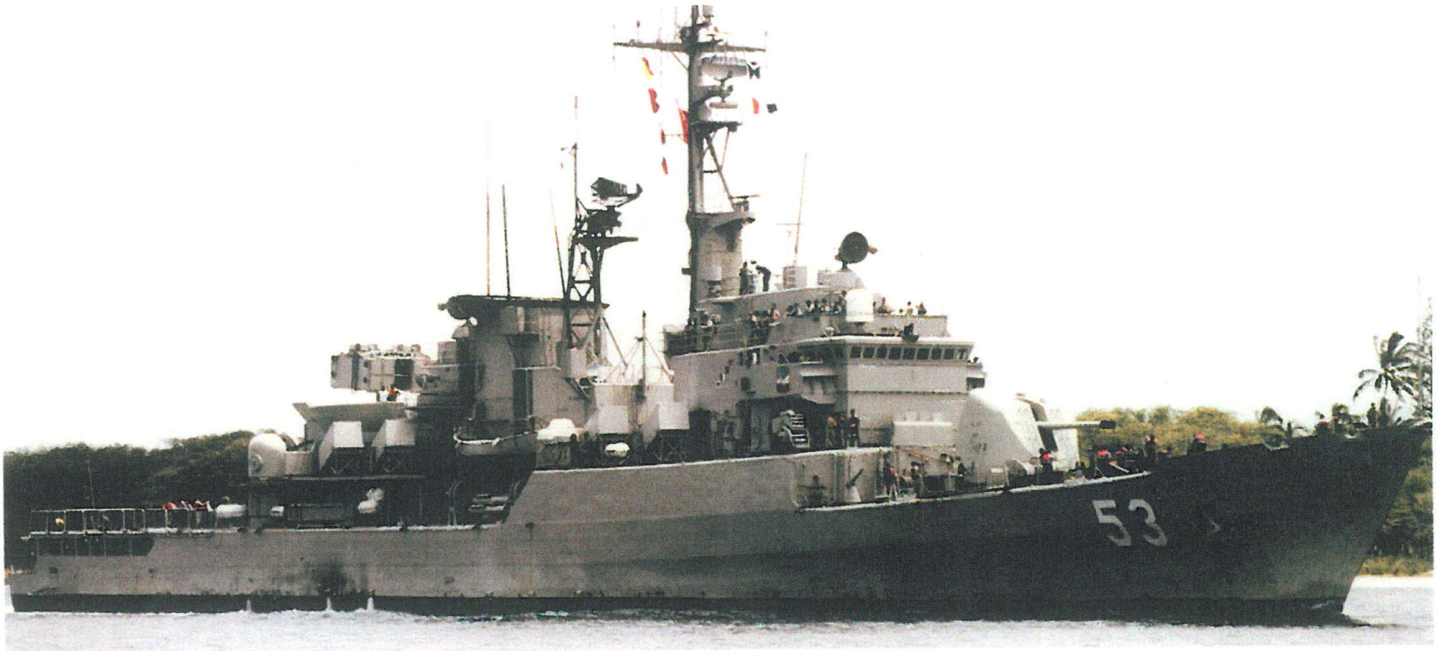


MARIATEGUI 2000, Peruvian Navy / 0105206



MONTERO 7/2002, Chris Sattler / 0533237

SHIPBORNE AIRCRAFT

Notes: There are also three Bell 206B training helicopters.

Numbers/Type: 3 Agusta AB 212ASW.
Operational speed: 106 kt *(196 km/h).*
Service ceiling: 14,200 ft *(4,330 m).*
Range: 230 n miles *(425 km).*
Role/Weapon systems: ASW and surface search helicopter for smaller escorts. Sensors: Selenia search radar, Bendix ASQ-18 dipping sonar, ECM. Weapons: ASW; two Mk 46 or 244/S torpedoes or depth bombs.

UPDATED

AB 212 *6/1994, Peruvian Navy* / 0081527

Numbers/Type: 3 Agusta-Sikorsky ASH-3D Sea King.
Operational speed: 120 kt *(222 km/h).*
Service ceiling: 12,200 ft *(3,720 m).*
Range: 630 n miles *(1,165 km).*
Role/Weapon systems: ASW helicopter; can be operated from two FFGs. Sensors: Selenia search radar, Bendix ASQ-18 dipping sonar, sonobuoys. Weapons: ASW; four Mk 46 or 244/S torpedoes or depth bombs or mines. ASV; two AM 39 Exocet missiles.

VERIFIED

SEA KING *2000, Peruvian Navy* / 0105209

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: (1) There is also one Mi-8T transport helicopter.
(2) Three Fokker F-27 are used by the Coast Guard for maritime surveillance.

Mi-8T *2000, Peruvian Navy* / 0105208

Numbers/Type: 2 Beechcraft Super King Air 200T.
Operational speed: 282 kt *(523 km/h).*
Service ceiling: 35,000 ft *(10,670 m).*
Range: 2,030 n miles *(3,756 km).*
Role/Weapon systems: Coastal surveillance and EEZ patrol duties. Sensors: Search radar, cameras. Weapons: Unarmed.

UPDATED

PATROL FORCES

Notes: (1) Procurement of ten hovercraft for river policing is under consideration.
(2) There are five new 12 m river patrol craft which entered service in September 2003. A class of 12 is expected.

6 VELARDE (PR-72P) CLASS
(FAST ATTACK CRAFT—MISSILE) (CM/PGGFM)

Name	*No*	*Builders*	*Launched*	*Commissioned*
VELARDE	CM 21	SFCN, France	16 Sep 1978	25 July 1980
SANTILLANA	CM 22	SFCN, France	11 Sep 1978	25 July 1980
DE LOS HEROS	CM 23	SFCN, France	20 May 1979	17 Nov 1980
HERRERA	CM 24	SFCN, France	16 Feb 1979	10 Feb 1981
LARREA	CM 25	SFCN, France	12 May 1979	16 June 1981
SANCHEZ CARRIÓN	CM 26	SFCN, France	28 June 1979	14 Sep 1981

Displacement, tons: 470 standard; 560 full load
Dimensions, feet (metres): 210 × 27.4 × 5.2 *(64 × 8.4 × 2.6)*
Main machinery: 4 SACM AGO 240 V16 M7 or 4 MTU 12V 595 diesels; 22,200 hp(m) *(16.32 MW)* sustained; 4 shafts
Speed, knots: 37. **Range, miles:** 2,500 at 16 kt
Complement: 36 plus 10 spare

Missiles: SSM: 4 Aerospatiale MM 38 Exocet; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: An SA-N-10 launcher (MPG-86) may be fitted on the stern.
Guns: 1 OTO Melara 3 in *(76 mm)*/62; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Breda 40 mm/70 (twin); 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
Countermeasures: ESM: Thomson-CSF DR 2000; intercept.
Weapons control: CSEE Panda director. Vega system.
Radars: Surface search: Thomson-CSF Triton; G-band; range 33 km *(18 n miles)* for 2 m² target.
Navigation: Racal Decca 1226; I-band.
Fire control: Thomson-CSF/Castor II; I/J-band; range 15 km *(8 n miles)* for 1 m² target.

Programmes: Ordered late 1976. Hulls of *Velarde, De los Heros, Larrea* subcontracted to Lorient Naval Yard, the others being built at Villeneuve-la-Garenne. Classified as corvettes.
Modernisation: Three of the class re-engined in 2000. Remainder to follow.

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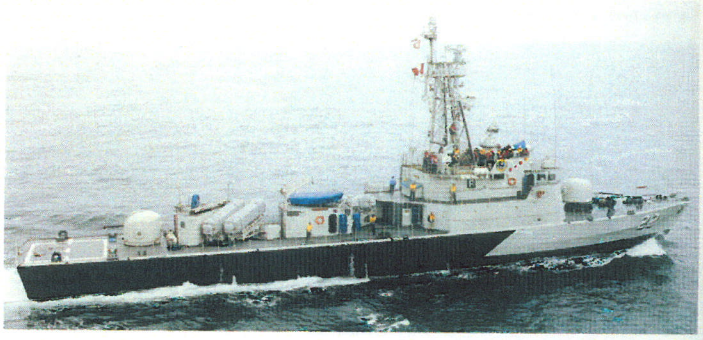

SANTILLANA *2000, Peruvian Navy* / 0105207

2 MARAÑON CLASS (RIVER GUNBOATS) (CF/PGR)

Name	*No*	*Builders*	*Commissioned*
MARAÑON	CF 13 (ex-CF 401)	John I Thornycroft & Co Ltd	July 1951
UCAYALI	CF 14 (ex-CF 402)	John I Thornycroft & Co Ltd	June 1951

Displacement, tons: 365 full load
Dimensions, feet (metres): 154.8 wl × 32 × 4 *(47.2 × 9.7 × 1.2)*
Main machinery: 2 British Polar M 441 diesels; 800 hp *(597 kW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 6,000 at 10 kt
Complement: 40 (4 officers)
Guns: 2—3 in *(76 mm)*/50. 2 Bofors 40 mm/60. 2 Oerlikon 20 mm.

Comment: Ordered early in 1950 and launched 7 March and 23 April 1951 respectively. Employed on police duties in Upper Amazon. Superstructure of aluminium alloy. Based at Iquitos.

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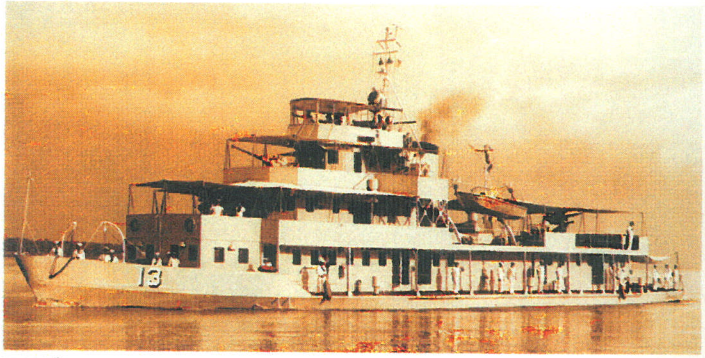

MARAÑON *1995, Peruvian Navy* / 0081529

UCAYALI *1993, Peruvian Navy* / 0081530

2 LORETO CLASS (RIVER GUNBOATS) (CF/PGR)

Name	*No*	*Builders*	*Commissioned*
AMAZONAS	CF 11 (ex-CF 403)	Electric Boat Co, Groton	1935
LORETO	CF 12 (ex-CF 404)	Electric Boat Co, Groton	1935

Displacement, tons: 250 standard
Dimensions, feet (metres): 145 × 22 × 4 *(44.2 × 6.7 × 1.2)*
Main machinery: 2 diesels; 750 hp(m) *(551 kW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 4,000 at 10 kt
Complement: 35 (5 officers)
Guns: 1—3 in *(76 mm)*. 3 Bofors 40 mm/60. 2 Oerlikon 20 mm.

Comment: Launched in 1934. In Upper Amazon Flotilla, based at Iquitos. The after 3 in gun has been replaced by a third 40 mm.

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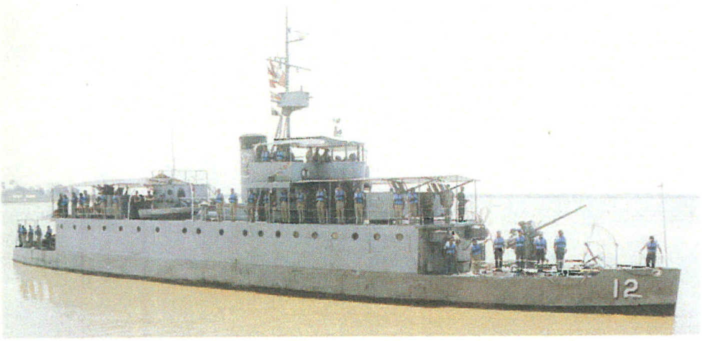

LORETO *4/1997, Peruvian Navy* / 0012880

6 DAUNTLESS CLASS (PBR)

Displacement, tons: 12 full load
Dimensions, feet (metres): 40 × 14 × 4.4 *(12.2 × 4.3 × 1.3)*
Main machinery: 2 Caterpillar 3208TA diesels; 870 hp *(650 kW)*; 2 shafts
Speed, knots: 27. **Range, miles:** 600 at 18 kt
Complement: 5
Guns: 1—12.7 mm MG. 1—7.62 mm MG.
Radars: Surface search: Furuno 821; I-band.

Comment: Ordered in February 2000 under FMS funding. First pair delivered in August 2000 remainder in November 2000. Formerly river patrol craft, now operational on Pacific coast.

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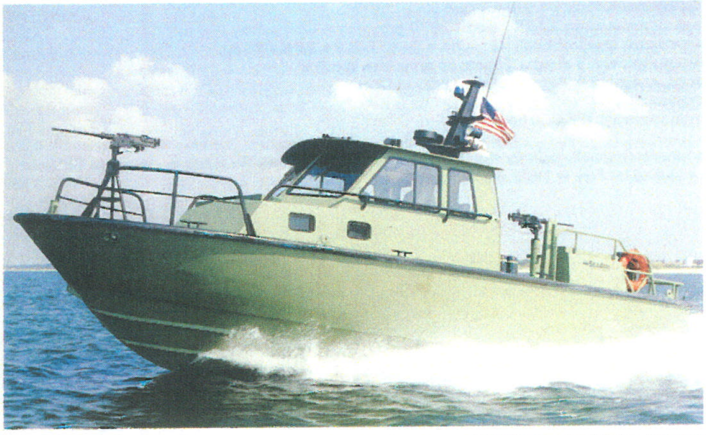
DAUNTLESS (US colours) *8/2000, SeaArk Marine* / 0093586

AMPHIBIOUS FORCES

Notes: There are plans for up to three 300 ft LSLs to be locally built when funds are available.

4 PAITA (TERREBONNE PARISH) CLASS (LSTH)

Name	*No*	*Builders*	*Commissioned*
PAITA (ex-*Walworth County* LST 1164)	DT 141	Ingalls SB	26 Oct 1953
PISCO (ex-*Waldo County* LST 1163)	DT 142	Ingalls SB	17 Sep 1953
CALLAO (ex-*Washoe County* LST 1165)	DT 143	Ingalls SB	30 Nov 1953
ETEN (ex-*Traverse County* LST 1160)	DT 144	Bath Iron Works	19 Dec 1953

Displacement, tons: 2,590 standard; 5,800 full load
Dimensions, feet (metres): 384 × 55 × 17 *(117.1 × 16.8 × 5.2)*
Main machinery: 4 GM 16-278A diesels; 6,000 hp *(4.48 MW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 15,000 at 9 kt
Complement: 116
Military lift: 2,000 tons; 395 troops
Guns: 5 Bofors 40 mm/60 (2 twin, 1 single).
Radars: Navigation: I-band.

Comment: Four transferred from USA on loan 7 August 1984, recommissioned 4 March 1985. Have small helicopter platform. Original 3 in guns replaced by 40 mm. Lease extended by grant aid in August 1989, again in August 1994, and again in April 1999. All are active.

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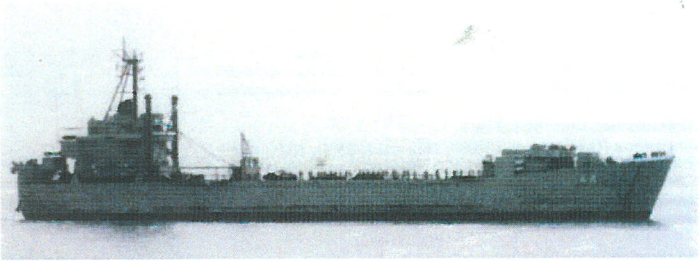
CALLAO *2000, Peruvian Navy* / 0105210

SURVEY AND RESEARCH SHIPS

Notes: AH 177 is a 5 ton fast survey craft.

1 INSHORE SURVEY CRAFT (AGSC/EH)

Name	*No*	*Builders*	*Commissioned*
MACHA	AEH 174	SIMA, Chimbote	Apr 1982

Displacement, tons: 53 full load
Dimensions, feet (metres): 64.9 × 17.1 × 3 *(19.8 × 5.2 × 0.9)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 13
Complement: 8 (2 officers)

Comment: Side scan sonar for plotting bottom contours. EH (Embarcacion Hidrográfica).

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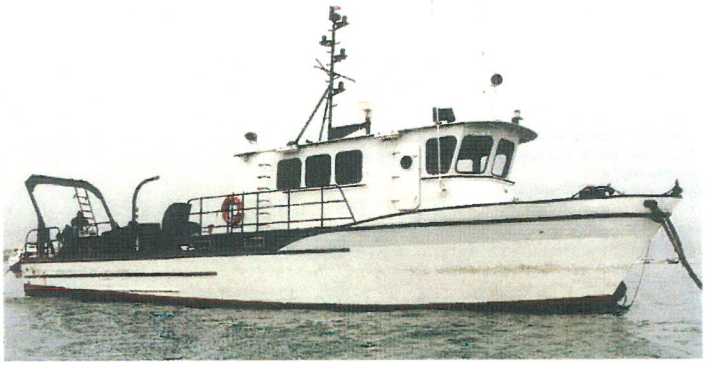
MACHA *2000, Peruvian Navy* / 0105213

1 DOKKUM CLASS (AGSC/EH)

Name	*No*	*Builders*	*Commissioned*
CARRASCO (ex-*Abcoude*)	AH 171 (ex-M 810)	Smulders, Schiedam	18 May 1956

Displacement, tons: 373 standard; 453 full load
Dimensions, feet (metres): 152.9 × 28.9 × 7.5 *(46.6 × 8.8 × 2.3)*
Main machinery: 2 Fijenoord MAN V64 diesels; 2,500 hp(m) *(1.84 MW)*; 2 shafts
Speed, knots: 16. **Range, miles:** 2,500 at 10 kt
Complement: 27-36
Guns: 2 Oerlikon 20 mm/70 (1 twin).
Radars: Navigation: Racal Decca TM 1229C; I-band.

Comment: Service with the Netherlands Navy as a minesweeper included modernisation in the mid-1970s and a life prolonging refit in the late 1980s. *Carrasco* placed in reserve in 1993 and transferred to Peru 16 July 1994. The ship has been acquired for hydrographic duties. Two more were planned to follow in mid-1996 but the transfer was cancelled.

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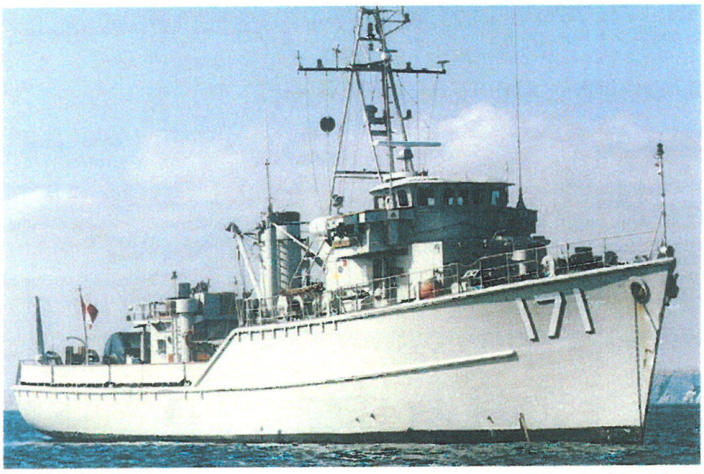

CARRASCO *2000, Peruvian Navy* / 0105211

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2 VAN STRAELEN CLASS (AGSC/EH)

Name	*No*	*Builders*	*Commissioned*
CARRILLO (ex-*van Hamel*)	AEH 175	De Vries, Amsterdam	14 Oct 1960
MELO (ex-*van der Wel*)	AEH 176	De Vries, Amsterdam	6 Oct 1961

Displacement, tons: 169 full load
Dimensions, feet (metres): 108.6 × 18.2 × 5.2 *(33.1 × 5.6 × 1.6)*
Main machinery: 2 GM diesels; 1,100 hp(m) *(808 kW)* sustained; 2 shafts
Speed, knots: 13
Complement: 17 (2 officers)
Guns: 1—20 mm

Comment: Both built as inshore minesweepers. Acquired 23 February 1985 for conversion with new engines and survey equipment.

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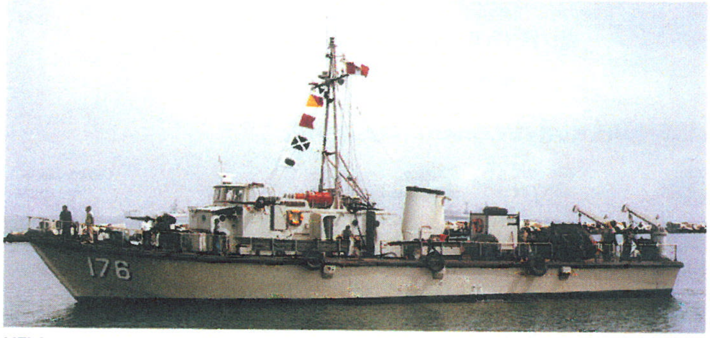

MELO *2000, Peruvian Navy* / 0105212

2 RIVER VESSELS (AGSC/AH)

Name	*No*	*Builders*	*Commissioned*
MORONA	ABH 302	Sima, Iquitos	1976
STIGLICH	AH 172	McLaren, Niteroi	1981

Displacement, tons: 230 full load
Dimensions, feet (metres): 112.2 × 25.9 × 5.6 *(34.2 × 7.9 × 1.7)*
Main machinery: 2 Detroit 12V-71TA diesels; 840 hp *(616 kW)* sustained; 2 shafts
Speed, knots: 15
Complement: 28 (2 officers)

Comment: *Stiglich* is based at Iquitos for survey work on the Upper Amazon. *Morona* is used as a hospital craft and has a red cross on her superstructure.

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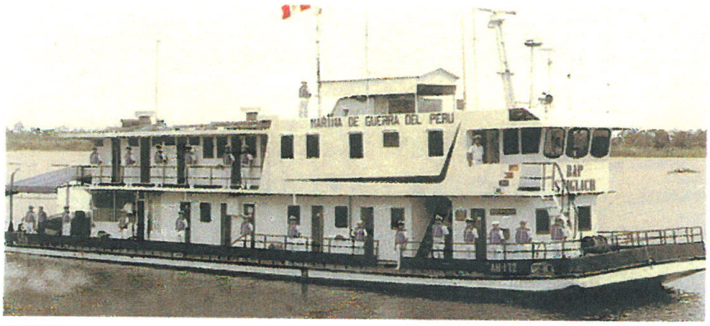

STIGLICH *6/1999, Peruvian Navy* / 0081533

AUXILIARIES

Notes: (1) All auxiliaries may be used for commercial purposes if not required for naval use.
(2) There is also a 55 ton sail training ship *Marte*.
(3) There are three small river hospital craft: *Corrientes* (ABH 303), *Curaray* (ABH 304) and *Pastaza* (ABH 305).

1 MOLLENDO CLASS (TRANSPORT) (AOR)

Name	*No*	*Builders*	*Commissioned*
MOLLENDO (ex-*Ilo*)	ATC 131	SIMA, Callao	15 Dec 1971

Displacement, tons: 18,400 full load
Measurement, tons: 13,000 dwt
Dimensions, feet (metres): 507.7 × 67.3 × 27.2 *(154.8 × 20.5 × 8.3)*
Main machinery: 1 Burmeister & Wain 6K47 diesel; 11,600 hp(m) *(8.53 MW)*; 1 shaft
Speed, knots: 15.6
Complement: 60
Cargo capacity: 13,000 tons

Comment: Sister ship *Rimac* is on permanent commercial charter.

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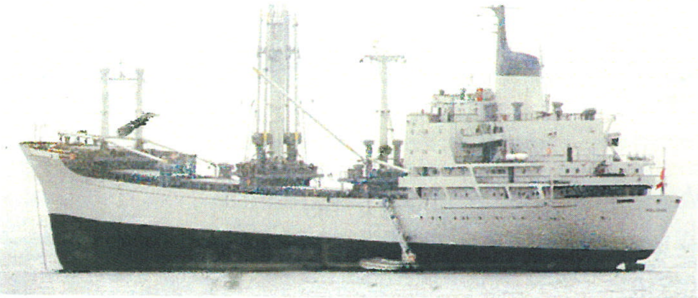

MOLLENDO *6/2001, Maritime Photographic* / 0126392

1 TALARA CLASS (REPLENISHMENT TANKER) (AOT)

Name	*No*	*Builders*	*Launched*	*Commissioned*
TALARA	ATP 152	SIMA, Callao	9 July 1976	23 Jan 1978

Displacement, tons: 30,000 full load
Measurement, tons: 25,000 dwt
Dimensions, feet (metres): 561.5 × 82 × 31.2 *(171.2 × 25 × 9.5)*
Main machinery: 2 Burmeister & Wain 6K47EF diesels; 12,000 hp(m) *(8.82 MW)*; 1 shaft
Speed, knots: 15.5
Cargo capacity: 35,662 m³

Comment: Capable of underway replenishment at sea from the stern. *Bayovar*, of this class, launched 18 July 1977, having been originally ordered by Petroperu (State Oil Company) and transferred to the Navy while building. Sold back to Petroperu in 1979 and renamed *Pavayacu*. A third, *Trompeteros*, of this class has been built for Petroperu.

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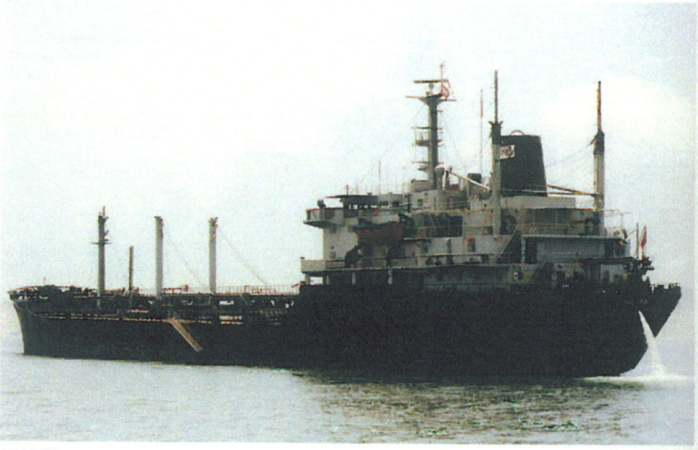

TALARA *2000, Peruvian Navy* / 0105214

1 SEALIFT CLASS (TANKER) (AOT)

Name	*No*	*Builders*	*Commissioned*
LOBITOS (ex-*Sealift Caribbean*)	ATP 153 (ex-ATP 159, ex-TAOT 174)	Bath Iron Works	10 Feb 1975

Displacement, tons: 34,100 full load
Measurement, tons: 27,736 dwt; 15,979 grt
Dimensions, feet (metres): 587 × 84 × 34.6 *(178.9 × 25.6 × 10.6)*
Main machinery: 2 diesels; 1 shaft; cp prop; bow thruster
Speed, knots: 12.5. **Range, miles:** 7,500 at 15 kt
Complement: 57
Cargo capacity: 185,000 barrels oil

Comment: Originally built for the US Military Sealift Command. Returned to owners in 1995 and acquired by Peru in 1998. No RAS gear.

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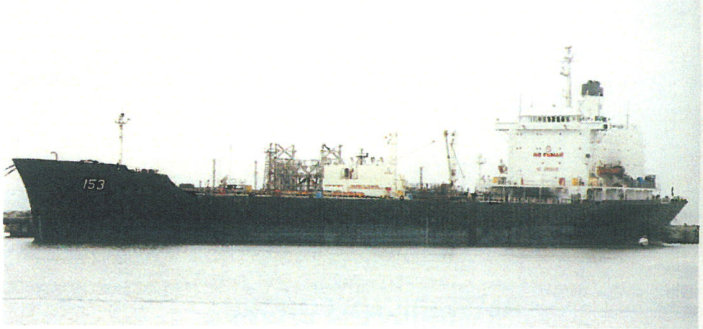

LOBITOS *6/2001, Maritime Photographic* / 0126391

1 SUPE CLASS TANKER (AOT)

Name	*No*	*Builders*	*Commissioned*
SUPE (ex-*Taxiarchos*)	ATP 157	Voldnes A/S Fosnaveg Noruega	1965

Measurement, tons: 1,138 grt
Dimensions, feet (metres): 219.2 × 31.2 × 12.9 *(66.8 × 9.52 × 3.95)*
Main machinery: Diesel propulsion; 1 shaft
Speed, knots: 11
Complement: 17
Cargo capacity: 7,500 barrels oil

Comment: Acquired from the USA in 1996.

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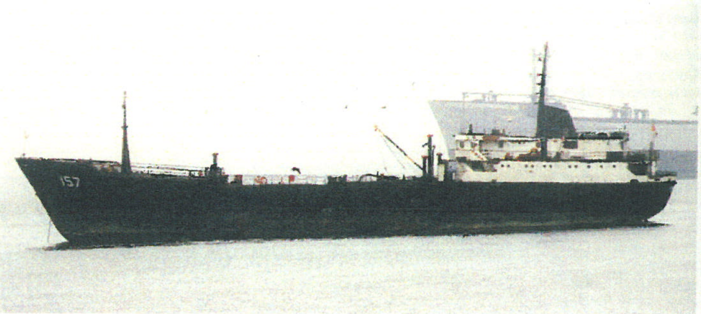

SUPE *6/2001, Maritime Photographic* / 0126390

4 HARBOUR TANKERS (FUEL/WATER) (YW/YO)

CALAYERAS ACA 111 (ex-*YW 128*)
NOGUERA ACP 118 (ex-*YO 221*)
GAUDEN ACP 119 (ex-*YO 171*)
BARCAZA CISTERNA DE AGUA ABA 332 (ex-*113*)

Displacement, tons: 1,235 full load
Dimensions, feet (metres): 174 × 32 × 13.3 *(52.3 × 9.8 × 4.1)*
Main machinery: 1 GM diesel; 560 hp *(418 kW)*; 1 shaft
Speed, knots: 8
Complement: 23
Cargo capacity: 200,000 gallons
Radars: Navigation: Raytheon; I-band.

Comment: Details given are for first three. *YO 221* transferred from USA to Peru January 1975; *YO 171* 20 January 1981; *YW 128* 26 January 1985. *ABA 332* is a water tanker built in Peru in 1972, capacity 300 tons.

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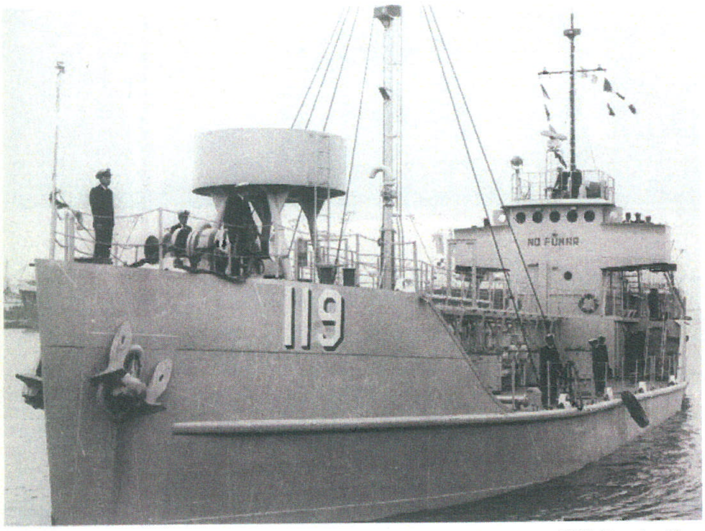

GAUDEN *1988, Peruvian Navy*

1 TORPEDO RECOVERY VESSEL (YPT)

Name	*No*	*Builders*	*Commissioned*
SAN LORENZO	ART 322	Lürssen/Burmeister	1 Dec 1981

Displacement, tons: 58 standard; 65 full load
Dimensions, feet (metres): 82.7 × 18.4 × 5.6 *(25.2 × 5.6 × 1.7)*
Main machinery: 2 MTU 8V 396 TC82 diesels; 1,740 hp(m) *(1.28 MW)* sustained; 2 shafts
Speed, knots: 19. **Range, miles:** 500 at 15 kt
Complement: 9

Comment: Can carry four long or eight short torpedoes.

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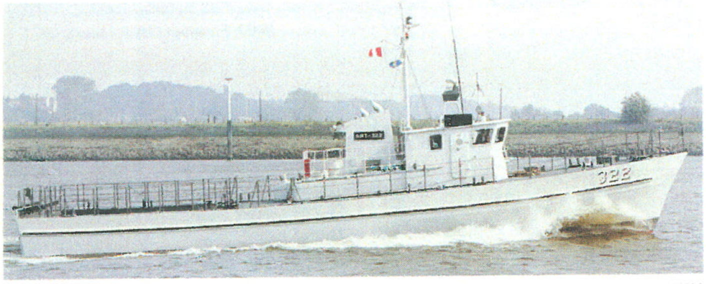

SAN LORENZO *9/1981, Lürssen Werft* / 0081534

1 LAKE HOSPITAL CRAFT (AH)

Name	*No*	*Builders*	*Commissioned*
PUNO (ex-*Yapura*)	ABH 306	J Watt Co, Thames Iron Works	18 May 1872

Comment: Stationed on Lake Titicaca. 500 grt and has a diesel engine. Sadly the second of the class was finally paid off in 1990.

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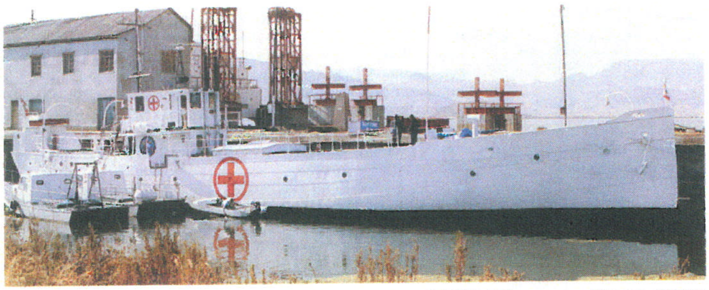

PUNO *8/1999, A Campanera i Rovira* / 0081535

5 FLOATING DOCKS

ADF 104 **106-109**

Displacement, tons: 1,900 *(106)*; 5,200 *(107)*; 600 *(108)*; 18,000 *(109)*; 4,500 tons *(104)*

Comment: *106* (ex-US *AFDL 33)* transferred 1959; *107* (ex-US *ARD 8)* transferred 1961; *108* built in 1951; *109* built in 1979; *104* built in 1991.

VERIFIED

TUGS

Notes: (1) There are three river tugs *Tapuina* AER 180, *Gaudin* AER 186 and *Zambrano* AER 187.
(2) There are also five small harbour tugs *Mejia* ARB 120, *Huerta* ARB 121, *Dueñas* ARB 126, *Olaya* ARB 128 and *Selendon* ARB 129.

1 CHEROKEE CLASS (SALVAGE TUG) (ATS)

Name	*No*	*Builders*	*Commissioned*
GUARDIAN RIOS (ex-*Pinto* ATF 90)	ARB 123	Cramp, Philadelphia, PA	1 Apr 1943

Displacement, tons: 1,640 full load
Dimensions, feet (metres): 205 × 38.5 × 17 *(62.5 × 11.7 × 5.2)*
Main machinery: Diesel-electric; 4 GM 12-278 diesels; 4,400 hp *(3.28 MW)*; 4 generators; 1 motor; 3,000 hp *(2.24 MW)*; 1 shaft
Speed, knots: 16.5. **Range, miles:** 6,500 at 16 kt
Complement: 99

Comment: Transferred from USA on loan in 1960, sold 17 May 1974. Fitted with powerful pumps and other salvage equipment.

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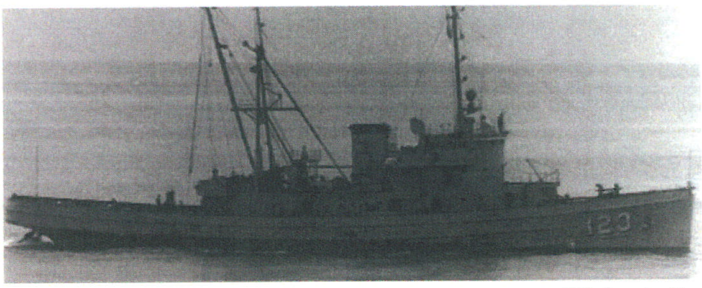

GUARDIAN RIOS *1993, Peruvian Navy*

COAST GUARD

Notes: DCB 350-358 are 6 m Cougar 22 class inshore patrol craft. DCB 358 is a one ton harbour patrol launch.

5 RIO CANETE CLASS (LARGE PATROL CRAFT) (WPB)

Name	*No*	*Builders*	*Commissioned*
RIO NEPEÑA	PC 243	SIMA, Chimbote	1 Dec 1981
RIO TAMBO	PC 244	SIMA, Chimbote	1982
RIO OCOÑA	PC 245	SIMA, Chimbote	1983
RIO HUARMEY	PC 246	SIMA, Chimbote	1984
RIO ZAÑA	PC 247	SIMA, Chimbote	12 Feb 1985

Displacement, tons: 296 full load
Dimensions, feet (metres): 167 × 24.8 × 5.6 *(50.9 × 7.4 × 1.7)*
Main machinery: 4 Bazán MAN V8V diesels; 5,640 hp(m) *(4.15 MW)*; 2 shafts
Speed, knots: 23. **Range, miles:** 3,050 at 17 kt
Complement: 39 (4 officers)
Guns: 1 Oerlikon 20 mm.
Radars: Surface search: Decca 1226; I-band.

Comment: Have aluminium alloy superstructures. The prototype craft was scrapped in 1990. *Rio Ocoña* completed refit in July 1996 and the rest of the class were refitted at one per year.

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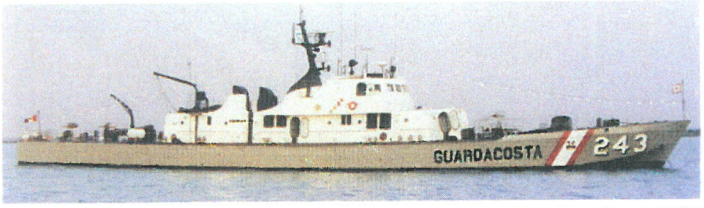

RIO NEPEÑA *2000, Peruvian Coast Guard* / 0105217

1 PGM 71 CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
RIO CHIRA	PC 223 (ex-*PGM 111*)	SIMA, Callao	June 1972

Displacement, tons: 147 full load
Dimensions, feet (metres): 118.2 × 21 × 6 *(36.0 × 6.4 × 1.8)*
Main machinery: 2 Detroit GN-71 diesels; 1,450 hp *(1.08 MW)*; 2 shafts
Speed, knots: 18. **Range, miles:** 1,500 at 10 kt
Complement: 15
Guns: 1—12.7 mm MG.
Radars: Surface search: Raytheon; I-band.

Comment: Acquired from the Navy in 1975. Paid off in 1994 but back in service again in 1997, with refurbished engines.

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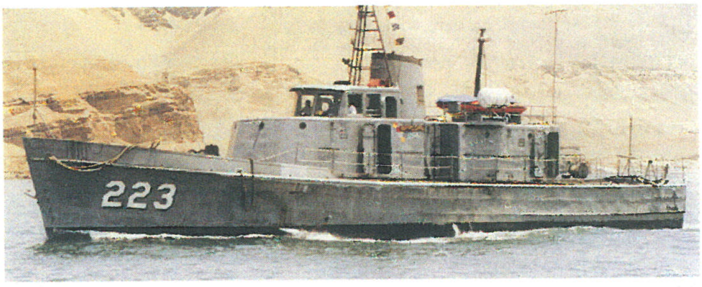

RIO CHIRA *2000, Peruvian Coast Guard* / 0105218

1 RIVER PATROL CRAFT (PBR)

Name	*No*	*Builders*	*Commissioned*
RIO PIURA	PC 242 (ex-P 252)	Viareggio, Italy	5 Sep 1960

Displacement, tons: 55 full load
Dimensions, feet (metres): 65.7 × 17 × 3.2 *(20 × 5.2 × 1)*
Main machinery: 2 GM 8V-71 diesels; 460 hp *(344 kW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 1,000 at 16 kt
Complement: 7 (1 officer)
Guns: 1—12.7 mm MG. 1 Oerlikon 20 mm.
Radars: Navigation: Raytheon; I-band.

Comment: Ordered in 1959. Armament changed in 1992. Refitted in 1996.

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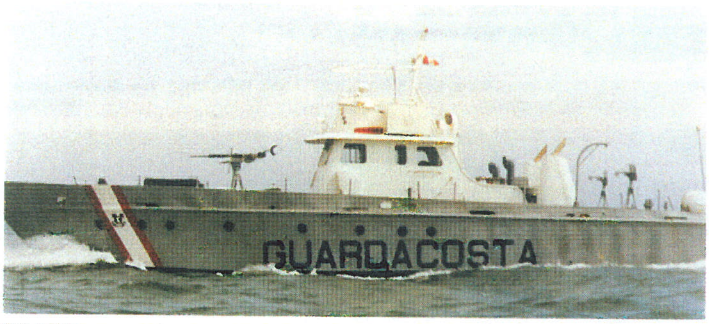

RIO PIURA *2000, Peruvian Coast Guard /* 0105219

16 LAKE and RIVER PATROL CRAFT (PBR)

RIO HULLAGA	PF 260	**RIO ITAYA**	PF 270
RIO SANTIAGO	PF 261	**RIO PATAYACU**	PF 271
RIO PUTUMAYO	PF 262	**RIO ZAPOTE**	PF 272
RIO NANAY	PF 263	**RIO CHAMBIRA**	PF 273
RIO NAPO	PF 264	**RIO TAMBOPATA**	PF 274
RIO YAVARI	PF 265	**RIO RAMIS**	PL 290
RIO MATADOR	PF 266	**RIO ILAVE**	PL 291
RIO PACHITEA	PF 267	**RIO AZANGARO**	PL 292

Displacement, tons: 5 full load
Dimensions, feet (metres): 32.8 × 11.2 × 2.6 *(10 × 3.4 × 0.8)*
Main machinery: 2 Perkins diesels; 480 hp *(358 kW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 450 at 28 kt
Complement: 3
Guns: 1—12.7 mm MG.
Radars: Surface search: Raytheon 2800; I-band.

Comment: Details given are for PL 290-292. Based at Puno on Lake Titicaca. GRP hulls built in 1982. The remainder are of various types. PL 260-263 are 4-5 ton craft, PL 264-267 are 2 tons and PL 270-274 are approximately 1 ton.

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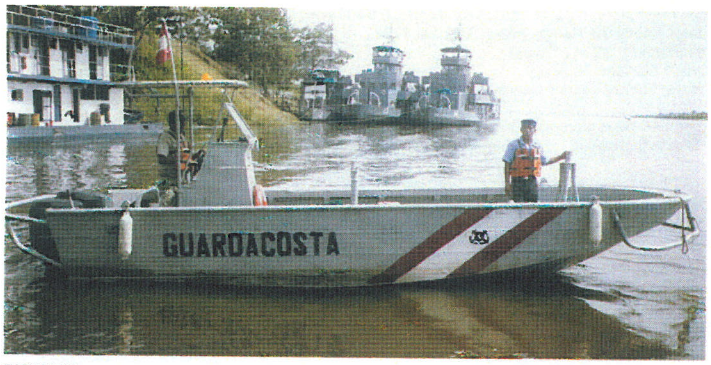
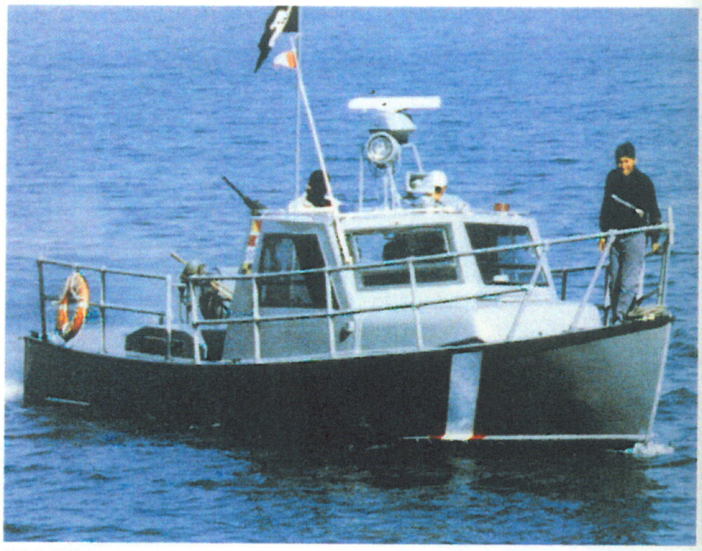


RIO NAPO *2000, Peruvian Coast Guard /* 0105221



RIO ILAVE *2000, Peruvian Coast Guard /* 0105220

10 PORT PATROL CRAFT (PBF/PB)

RIO SUPE PP 210	**QUILCA** PP 214	**RIO MAJES** PP 233
RIO VITOR PP 211	**PUCUSANA** PP 215	**RIO VIRU** PP 235
MANCORA PP 212	**RIO SANTA** PP 232	**RIO LURIN** PP 236
HUAURA PP 213		

Comment: Miscellaneous craft. PP 210-211 are Cougar 40 kt fast patrol craft of 2 tons, PP 212-214 are 1 ton and PP 215 of 4 tons. All six acquired in 1996. PP 232-233 and PP 235-236 are 14-15 ton craft. These were acquired in 1999.

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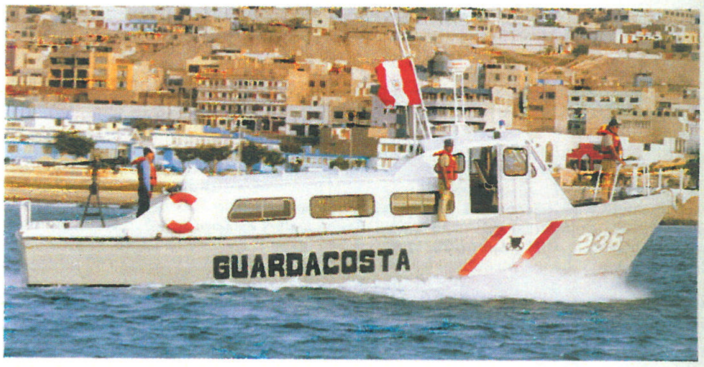
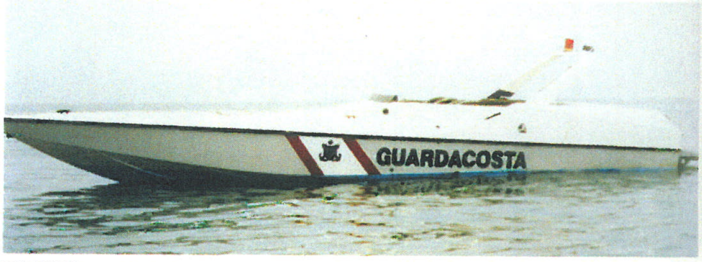


RIO VIRU *2000, Peruvian Coast Guard /* 0105222



RIO SUPE *2000, Peruvian Coast Guard /* 0105223

Philippines

Country Overview

The Republic of the Philippines was formally proclaimed in 1946. Situated between Taiwan to the north and Indonesia and Malaysia to the south, the country comprises about 7,100 islands with a total coastline of 19,597 n miles with the South China, Philippine and Celebes Seas. Eleven islands, Bohol, Cebu, Leyte, Luzon, Masbate, Mindanao, Mindoro, Negros, Palawan, Panay, and Samar, contain the majority of the population. Most remaining islands are less than 1 square mile in area. The capital, principal city and port is Manila. Other important ports include Davao, Cebu and Zamboanga. An archipelagic state, territorial seas (12 n miles) are claimed. A 200 n.mile EEZ has also been claimed but the limits have not been defined.

Headquarters Appointments

Flag Officer-in-Command:
Vice Admiral Ernesto H Deleon
Vice Commander:
Rear Admiral Pastor Ramos Jr, AFP
Commander Fleet:
Commodore Ruben G Domingo, AFP
Commandant Coast Guard:
Vice Admiral Reuben S Lista, PCG
Commandant Marines:
Major General Librado S Ladia, AFP

Diplomatic Representation

Defence Attaché in London:
Captain Feliciano Angue

Personnel

(a) 2004: 20,500 Navy; 7,500 Marines; 3,500 Coast Guard
(b) Reserves: 17,000

Organisation

The Naval Headquarters is at Manila. From 1996 there are four operational commands composed of Naval Forces North (Cagayan), Naval Forces West (Palawan), Naval Forces Central (Mactan) and Naval Forces South (Tawi-Tawi). The Coast Guard was transferred to the Department of Transport and Communication in 1998. There are eight Coast Guard Districts, 47 stations and 154 Coast Guard Detachment units.

Marine Corps

Marines comprise three tactical brigades composed of 10 tactical battalions, one support regiment, a service group, a guard battalion and a reconnaissance battalion. Headquarters at Ternate, Manila Bay. Deployed in Mindanao and Palawan.

Bases

Main: Cavite.
Operational: San Vicente, Mactan, Ternate.
Stations: Cebu, Davao, Legaspi, Bonifacio, Tacloban, San Miguel, Ulugan, Balabne, Puerto Princesa, Pagasa.

Prefix to Ships' Names

BRP: Barko Republika Pilipinas

Strength of the Fleet

Type	*Active*	*Building*
Frigates	(1)	—
Corvettes	13	(2)
Fast Attack Craft	6	—
Large Patrol Craft	5	1 (3)
Coastal Patrol Craft	37	2
LST/LSV Transports	8	—
LCM/LCU/RUC/LCVP	44	—
Repair Ship	1	—
Tankers	4	—
Coast Guard		
Tenders	4	—
Patrol Craft	58	1

PENNANT LIST

Frigates

PF 11	Rajah Humabon

Corvettes

PS 19	Miguel Malvar
PS 20	Magat Salamat
PS 22	Sultan Kudarat
PS 23	Datu Marikudo
PS 28	Cebu
PS 29	Negros Occidental
PS 31	Pangasinan
PS 32	Iloilo
PS 35	Emilio Jacinto
PS 36	Apolinario Mabini
PS 37	Artemio Ricarte
PS 70	Quezon
PS 74	Rizal

Patrol Forces

PG 101	Kagitingan
PG 102	Bagong Lakas
PG 104	Bagong Silang
PG 110	Tomas Batilo
PG 111	Bonny Serrano
PG 112	Bienvenido Salting
PG 114	Salvador Abcede
PG 115	Ramon Aguirre
PG 116	Nicolas Mahusay
PG 140	Emilo Aguinaldo
PG 141	Antonio Luna
PG 370	José Andrada
PG 371	Enrique Jurado
PG 372	Alfredo Peckson
PG 374	Simeon Castro
PG 375	Carlos Albert
PG 376	Heracleo Alano
PG 377	Liberato Picar
PG 378	Hilario Ruiz
PG 379	Rafael Pargas
PG 380	Nestor Reinoso
PG 381	Dioscoro Papa
PG 383	Ismael Lombiao
PG 384	Leovigildo Gantioque
PG 385	Federico Martir
PG 386	Filipino Flojo
PG 387	Anastacio Cacayorin
PG 388	Manuel Gomez
PG 389	Testimo Figuracion
PG 390	José Loor SR
PG 392	Juan Magluyan
PG 393	Florenca Nuno
PG 394	Alberto Navaret
PG 395	Felix Apolinario
PG 396	Brigadier Abraham Campo
PG 840	Conrado Yap
PG 842	Tedorico Dominado Jr
PG 843	Cosme Acosta
PG 844	José Artiaga Jr
PG 846	Nicanor Jimenez
PG 847	Leopoldo Regis
PG 848	Leon Tadina
PG 849	Loreto Danipog
PG 851	Apollo Tiano
PG 853	Sulpicio Hernandez

Auxiliaries

LT 86	Zamboanga Del Sur
LT 87	South Cotabato
LT 501	Laguna
LT 504	Lanao Del Norte
LT 516	Kalinga Apayao
LC 550	Bacolod City
LC 551	Dagupan City
AT 25	Ang Pangulo
AW 33	Lake Bulusan
AW 34	Lake Paoay
AF 72	Lake Taal
AF 78	Lake Buhi
AC 90	Mactan
AD 617	Yakal

Coast Guard

AE 46	Cape Bojeador
PG 61	Agusan
PG 62	Catanduanes
PG 63	Romblon
PG 64	Palawan
AT 71	Mangyan
AU 75	Bessang Pass
AE 79	Limasawa
AG 89	Kalinga
AU 100	Tirad Pass
001	San Juan
002	Esda II

FRIGATES

Notes: *Rajah Lakandula*, paid off in 1988, is still afloat as an alongside HQ and depot ship.

1 CANNON CLASS (FF)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
RAJAH HUMABON (ex-*Hatsuhi* DE 263, ex-*Atherton* DE 169)	PF 11 (ex-PF 78)	Norfolk Navy Yard, Portsmouth, VA	14 Jan 1943	27 May 1943	29 Aug 1943

Displacement, tons: 1,390 standard; 1,750 full load
Dimensions, feet (metres): 306 × 36.6 × 14 *(93.3 × 11.2 × 4.3)*
Main machinery: Diesel-electric; 2 GM EMD 16V-645E7 diesels; 5,800 hp *(4.32 MW)*; 4 generators; 2 motors; 2 shafts
Speed, knots: 18. **Range, miles:** 6,000 at 14 kt
Complement: 165

Guns: 3 US 3 in *(76 mm)*/50 Mk 22; 20 rds/min to 12 km *(6.6 n miles)*; weight of shell 6 kg.
6 US/Bofors 40 mm/56 (3 twin). 4 Oerlikon 20 mm/70; 2—12.7 mm MGs.
Depth charges: 8 K-gun Mk 6 projectors; range 160 m; warhead 150 kg; 1 rack.
Weapons control: Mk 52 GFCS with Mk 41 rangefinder for 3 in guns. 3 Mk 51 Mod 2 GFCS for 40 mm.
Radars: Surface search: Raytheon SPS-5; G/H-band.
Navigation: RCA/GE Mk 26; I-band.
Sonars: SQS-17B; hull-mounted; active search and attack; medium/high frequency.

Programmes: *Hatsuhi* originally transferred by the US to Japan 14 June 1955 and paid off June 1975 reverting to US Navy. Transferred to Philippines 23 December 1978. Towed to South Korea 1979 for overhaul and modernisation. Recommissioned 27 February 1980. A sister ship *Datu Kalantiaw* lost during Typhoon Clara 20 September 1981.
Modernisation: Upgrade plans have been suspended.
Operational: Hedgehog A/S mortars have been reported.
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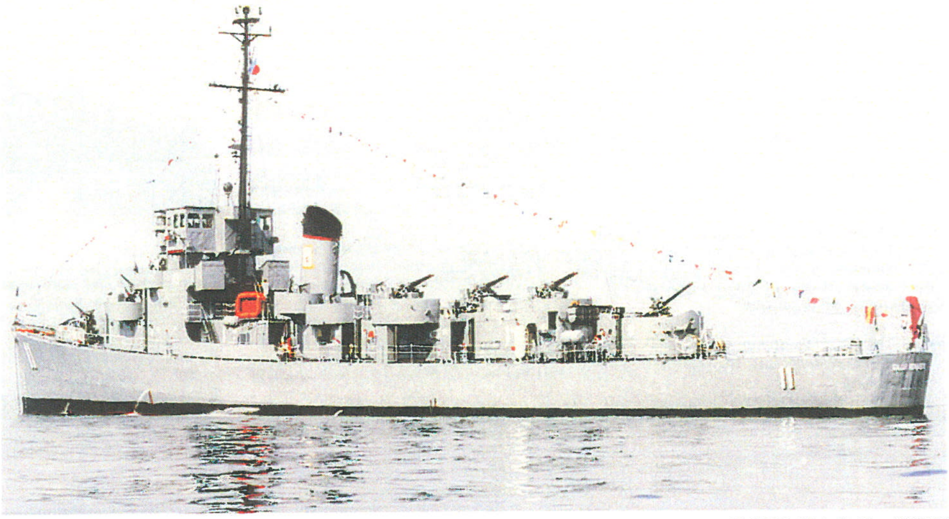

RAJAH HUMABON *10/2001, Chris Sattler* / 0126280

CORVETTES

3 JACINTO (PEACOCK) CLASS (FS)

Name	*No*	*Builders*	*Launched*	*Commissioned*	*Recommissioned*
EMILIO JACINTO (ex-*Peacock*)	PS 35 (ex-P 239)	Hall Russell, Aberdeen	1 Dec 1982	14 July 1984	4 Aug 1997
APOLINARIO MABINI (ex-*Plover*)	PS 36 (ex-P 240)	Hall Russell, Aberdeen	12 Apr 1983	20 July 1984	4 Aug 1997
ARTEMIO RICARTE (ex-*Starling*)	PS 37 (ex-P 241)	Hall Russell, Aberdeen	11 Sep 1983	10 Aug 1984	4 Aug 1997

Displacement, tons: 763 full load
Dimensions, feet (metres): 204.1 × 32.8 × 8.9 *(62.6 × 10 × 2.7)*
Main machinery: 2 Crossley Pielstick 18 PA6 V 280 diesels; 14,000 hp(m) *(10.6 MW)* sustained; 2 shafts; 1 retractable Schottel prop; 181 hp *(135 kW)*
Speed, knots: 25. **Range, miles:** 2,500 at 17 kt
Complement: 31 (6 officers) plus 7 spare berths

Guns: 1—3 in *(76 mm)*/62 OTO Melara compact; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
4 FN 7.62 mm MGs.
Weapons control: BAe Sea Archer GSA-7 for 76 mm gun.
Radars: Navigation: Kelvin Hughes Type 1006; I-band.

Programmes: Letter of Intention to purchase from the UK signed in November 1996. Transferred 1 August 1997 after sailing from Hong Kong on 1 July 1997. Others of the class in service with the navy of the Irish Republic.
Modernisation: An upgrade programme was agreed in 2002. Phase one is to be lead by QinetiQ in 2004-06 and is to include a new fire-control system, an upgrade for the 76 mm gun, the installation of a 25 mm gun aft and new navigation and communication systems. Phases two and three are to involve new propulsion and safety systems.
Structure: Fitted with telescopic cranes, loiter drive and replenishment at sea equipment. In UK service, two fast pursuit craft were carried.
Operational: These ships are the workhorses of the fleet. Based at Cavite.
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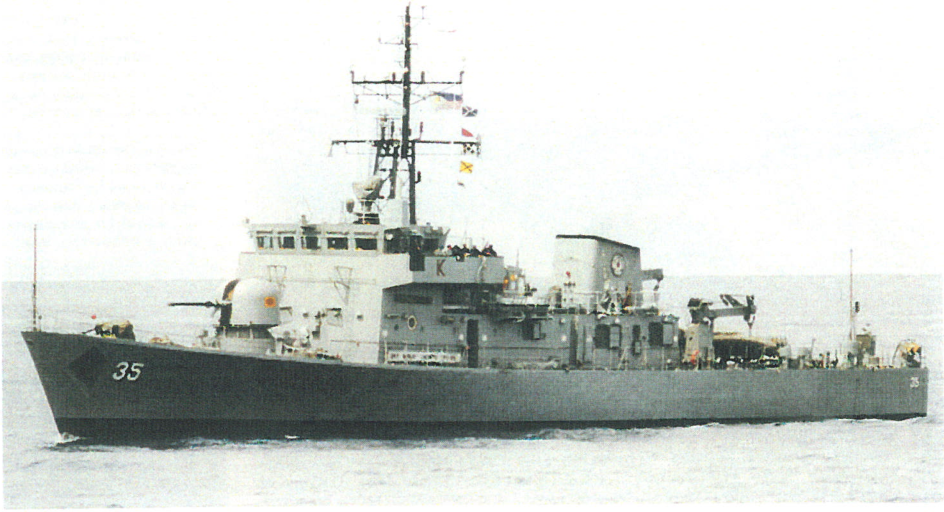

EMILIO JACINTO *6/2002* / 0534067

2 AUK CLASS (FS)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
RIZAL (ex-*Murrelet* MSF 372)	PS 74 (ex-PS 69)	Savannah Machine & Foundry Co, GA	24 Aug 1944	29 Dec 1944	21 Aug 1945
QUEZON (ex-*Vigilance* MSF 324)	PS 70	Associated Shipbuilders, Seattle, WA	28 Nov 1942	5 Apr 1943	28 Feb 1944

Displacement, tons: 1,090 standard; 1,250 full load
Dimensions, feet (metres): 221.2 × 32.2 × 10.8 *(67.4 × 9.8 × 3.3)*
Main machinery: Diesel-electric; 2 GM EMD 16V-645E6 diesels; 5,800 hp *(4.32 MW)*; 2 generators; 2 motors; 2 shafts
Speed, knots: 18. **Range, miles:** 5,000 at 14 kt
Complement: 80 (5 officers)

Guns: 2 US 3 in *(76 mm)*/50 Mk 26; 20 rds/min to 12 km *(6.6 n miles)*; weight of shell 6 kg.
4 US/Bofors 40 mm/56 (2 twin); 160 rds/min to 11 km *(5.9 n miles)*; weight of shell 0.9 kg.
2 Oerlikon 20 mm (twin). 2—12.7 mm MGs.
Depth charges: 2 Mk 9 racks.
Radars: Surface search: Raytheon SPS-5C; G/H-band.
Navigation: DAS 3; I-band.
Sonars: SQS-17B; hull-mounted; active search and attack; high frequency.

Programmes: *Rizal* transferred from the US to the Philippines on 18 June 1965 and *Quezon* on 19 August 1967.
Modernisation: Upgrade plans have been suspended.
Structure: Upon transfer the minesweeping gear was removed and a second 3 in gun fitted aft.
Operational: Both ships were to have been deleted in 1994 but have been retained until new class of OPVs is built.

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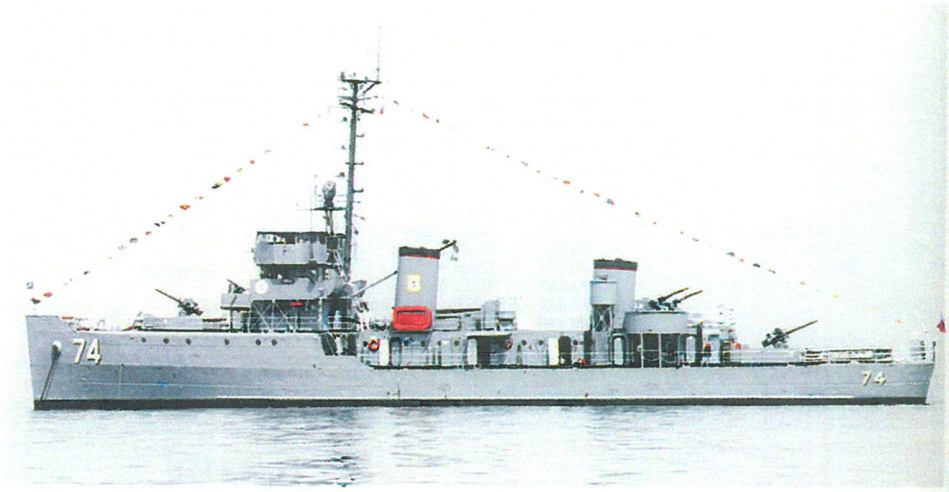
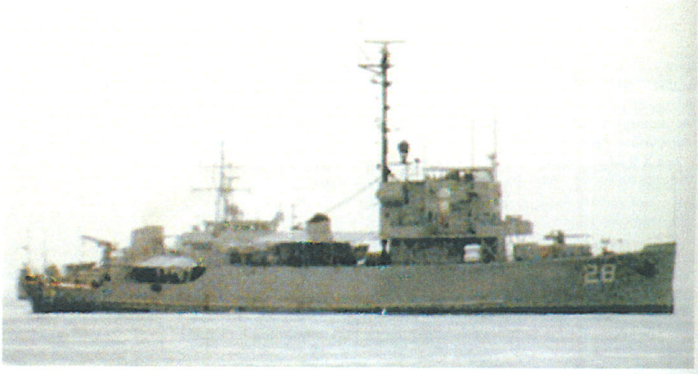

RIZAL *10/2001, Chris Sattler* / 0534068

8 PCE 827 CLASS (FS)

Name	*No*	*Builders*	*Commissioned*
MIGUEL MALVAR (ex-*Ngoc Hoi*, Ex-*Brattleboro* PCER 852)	PS 19	Pullman Standard Car Co, Chicago	26 May 1944
MAGAT SALAMAT (ex-*Chi Lang II*, ex-*Gayety* MSF 239)	PS 20	Winslow Marine Co, Seattle, WA	14 June 1944
SULTAN KUDARAT (ex-*Dong Da II*, ex-*Crestview* PCER 895)	PS 22	Willamette Iron & Steel Corporation, Portland, OR	30 Oct 1943
DATU MARIKUDO (ex-*Van Kiep II*, ex-*Amherst* PCER 853)	PS 23	Pullman Standard Car Co, Chicago	16 June 1944
CEBU (ex-*PCE 881*)	PS 28	Albina E and M Works, Portland, OR	31 July 1944
NEGROS OCCIDENTAL (ex-*PCE 884*)	PS 29	Albina E and M Works, Portland, OR	30 Mar 1944
PANGASINAN (ex-*PCE 891*)	PS 31	Willamette Iron & Steel Corp, Portland, OR	15 June 1944
ILOILO (ex-*PCE 897*)	PS 32	Willamette Iron & Steel Corp, Portland, OR	6 Jan 1945

Displacement, tons: 640 standard; 914 full load
Dimensions, feet (metres): 184.5 × 33.1 × 9.5 *(56.3 × 10.1 × 2.9)*
Main machinery: 2 GM 12-278A diesels; 2,200 hp *(1.64 MW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 6,600 at 11 kt
Complement: 85 (8 officers)

Guns: 1 US 3 in *(76 mm)*/50; 20 rds/min to 12 km *(6.6 n miles)*; weight of shell 6 kg.
2 to 6 US/Bofors 40 mm/56 (single or 1—3 twin); 160 rds/min to 11 km *(5.9 n miles)*; weight of shell 0.9 kg.
2 Oerlikon 20 mm/70; 800 rds/min to 2 km.
Radars: Surface search: SPS-50 (PS 23). SPS-21D (PS 19, 28). CRM-NIA-75 (PS 29, 31, 32). SPS-53A (PS 20).
Navigation: RCA SPN-18; I/J-band.


CEBU *5/2000, M Declerck* / 0105225

Programmes: Five transferred from the US to the Philippines in July 1948 (PS 28-32); PS 22 to South Vietnam from US Navy on 29 November 1961, PS 20 in April 1962, PS 19 on 11 July 1966, and PS 23 in June 1970. PS 19, 20 and 22 to Philippines November 1975 and PS 23 5 April 1976.
Modernisation: PS 19, 22, 31 and 32 refurbished in 1990-91, PS 23 and 28 in 1992 and the last pair in 1996/97.
Structure: First three were originally fitted as rescue ships (PCER). A/S equipment has been removed or is inoperable. PS 20 has some minor structural differences having been built as an 'Admirable' class MSF.
Operational: PS 29 is probably not operational.

UPDATED

LAND-BASED MARITIME AIRCRAFT

Notes: Three maritime patrol aircraft may be acquired by the Philippines Air Force for EEZ patrol and counter-insurgency operations.

Numbers/Type: 7 PADC (Pilatus Britten-Norman) Islander F27MP.
Operational speed: 150 kt *(280 km/h)*.
Service ceiling: 18,900 ft *(5,760 m)*.
Range: 1,500 n miles *(2,775 km)*.
Role/Weapon systems: Short-range MR and SAR aircraft. First purchased in 1989. Three transferred from the Air Force. Upgrade of avionics and communications is planned. Sensors: Search radar, cameras. Weapons: Unarmed.

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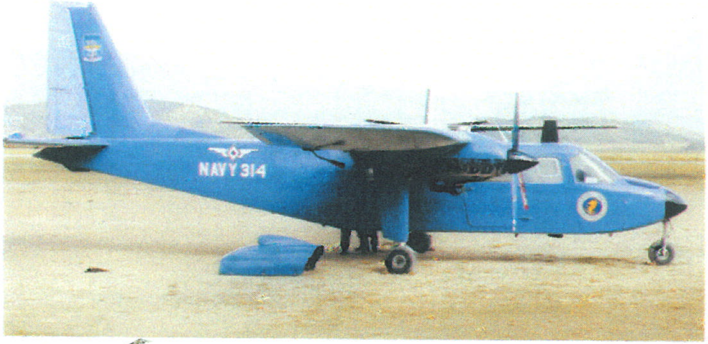

F-27MP *10/2001*, Adolfo Ortigueira Gil* / 0567482

Numbers/Type: 7 PADC (MBB) BO 105C.
Operational speed: 145 kt *(270 km/h)*.
Service ceiling: 17,000 ft *(5,180 m)*.
Range: 355 n miles *(657 km)*.
Role/Weapon systems: Sole shipborne helicopter; some shore-based for SAR; some commando support capability. Purchased at the rate of one per year from 1986 to 1992. Upgrade of avionics and communications is planned. Sensors: Some fitted with search radar. Weapons: Unarmed.

VERIFIED

PATROL FORCES

Notes: (1) The Navy operates one Swift Mk 1 (50 ft), three Mk 2 (51 ft) and four Mk 3 (65 ft) coastal patrol craft. Details as for identical craft operated by the Coast Guard.
(2) Plans to procure three offshore patrol craft have been suspended although they remain a long-term aspiration.

2 + 1 AGUINALDO CLASS (LARGE PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Commissioned*
EMILIO AGUINALDO	PG 140	Cavite, Sangley Point	21 Nov 1990
ANTONIO LUNA	PG 141	Cavite, Sangley Point	27 May 1999
—	PG 142	Cavite, Sangley Point	–

Displacement, tons: 236 full load
Dimensions, feet (metres): 144.4 × 24.3 × 5.2 *(44 × 7.4 × 1.6)*
Main machinery: 2 MTU 16V-396TB94 diesels; 3,480 hp *(2.59 MW)* sustained; 2 shafts
Speed, knots: 28. **Range, miles:** 1,100 at 18 kt
Complement: 58 (6 officers)
Guns: 2 Bofors 40 mm/60. 2 Oerlikon 20 mm. 4—12.7 mm MGs.
Radars: Surface search: Raytheon; I-band.

Comment: Steel hulls of similar design to *Tirad Pass*. First of class launched 23 June 1984 but only completed in 1990. Second laid down 2 December 1990 and launched 23 June 1992. PG 142 laid down on 14 February 1994 and launched in April 2000. While the superstructure is 70 per cent completed, outfitting has been suspended due to budget constraints. For similar reasons, the outlook for completion of the six ship programme looks doubtful as do plans to upgrade existing ships with a SAM system and 76 mm gun.

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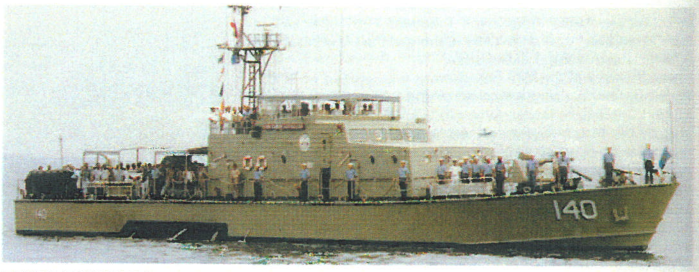

EMILIO AGUINALDO *6/1993* / 0081540

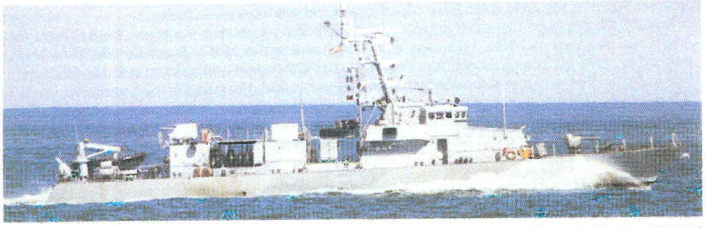
1 CYCLONE CLASS (COASTAL PATROL SHIP) (PB)

Name	*No*	*Builders*	*Commissioned*
GENERAL MARIANO ALVARES (ex-*Cyclone*)	— (ex-PC 1)	Bollinger, Lockport	7 Aug 1993

Displacement, tons: 354 full load; 386 full load (PC 2, 8, 13, 14)
Dimensions, feet (metres): 170.3; 179 (PC 2, 8, 13, 14) × 25.9 × 7.9 *(51.9; 54.6 × 7.9 × 2.4)*
Main machinery: 4 Paxman Valenta 16RP200CM diesels; 13,400 hp *(10 MW)* sustained; 4 shafts
Speed, knots: 35. **Range, miles:** 2,500 at 12 kt
Complement: 28 (4 officers) plus 8
Guns: 1 Bushmaster 25 mm Mk 38. 1 Bushmaster 25 mm/87 Mk 96 (aft). 4—12.7 mm MGs. 4—7.62 mm MGs. 2—40 mm Mk 19 grenade launchers (MGs and grenade launchers are interchangeable).
Countermeasures: Decoys: 2 Mk 52 sextuple and/or Wallop Super Barricade Mk 3 chaff launchers.
ESM: Privateer APR-39; radar warning.
Weapons control: Marconi VISTAR IM 405 IR system.
Radars: Surface search: 2 Sperry RASCAR; E/F/I/J-band.
Sonars: Wesmar; hull-mounted; active; high frequency.

Programmes: Transferred from the USN to the Philippines in January 2004 following refits at Bollinger.

Structure: Design based on Vosper Thornycroft 'Ramadan' class modified for USN requirements including 1 in armour on superstructure. The craft has a slow speed loiter capability and has been modified to incorporate a semi-dry well, boat ramp and stern gate to facilitate deployment and recovery of a fully loaded RIB while the ship is making way. ***NEW ENTRY***

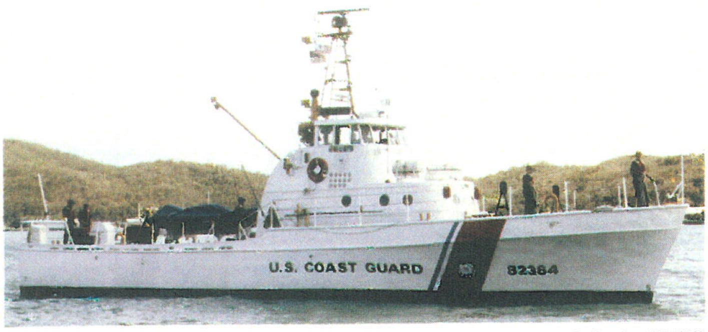

CYCLONE CLASS *9/2002, Winter & Findler* / 0529974

2 POINT CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
ALBERTO NAVARET (ex-*Point Evans*)	PG 394 (ex-82354)	CG Yard, Maryland	10 Jan 1967
BRIGADIER ABRAHAM CAMPO (ex-*Point Doran*)	PG 396 (ex-82375)	CG Yard, Maryland	1 June 1970

Displacement, tons: 67 full load
Dimensions, feet (metres): 83 × 17.2 × 5.8 *(25.3 × 5.2 × 1.8)*
Main machinery: 2 Caterpillar 3412 diesels; 1,600 hp *(1.19 MW)*; 2 shafts
Speed, knots: 23. **Range, miles:** 1,500 at 8 kt
Complement: 10
Guns: 2—12.7 mm MGs.
Radars: Surface search: Furuno; I-band.

Comment: PG 394 transferred from US Coast Guard 16 November 1999. Second transferred 22 March 2001. This class is in service with many other navies. ***VERIFIED***



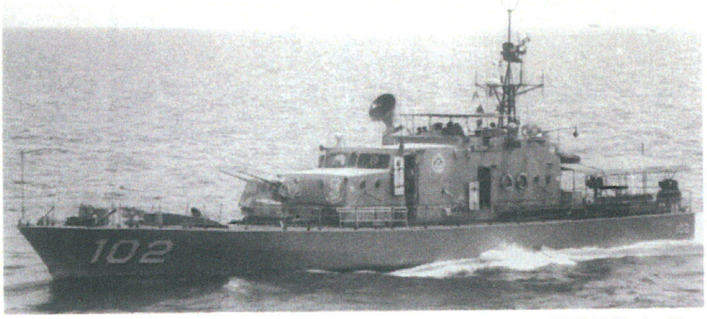
POINT CLASS (US colours) *4/1992, van Ginderen Collection* / 0081549

3 KAGITINGAN CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
KAGITINGAN	P 101	Hamelin SY, Germany	9 Feb 1979
BAGONG LAKAS	PG 102 (ex-P 102)	Hamelin SY, Germany	9 Feb 1979
BAGONG SILANG	PG 104 (ex-P 104)	Hamelin SY, Germany	July 1979

Displacement, tons: 150 full load
Dimensions, feet (metres): 121.4 × 20.3 × 5.6 *(37 × 6.2 × 1.7)*
Main machinery: 2 MTU MB 16V-538TB91 diesels; 2,500 hp(m) *(1.86 MW)* sustained; 2 shafts
Speed, knots: 21
Complement: 30 (4 officers)
Guns: 2—30 mm (twin). 4—12.7 mm MGs. 2—7.62 mm MGs.
Radars: Surface search: I-band.

Comment: Based at Cavite. P 103 paid off and used for spares. All still in service. ***VERIFIED***



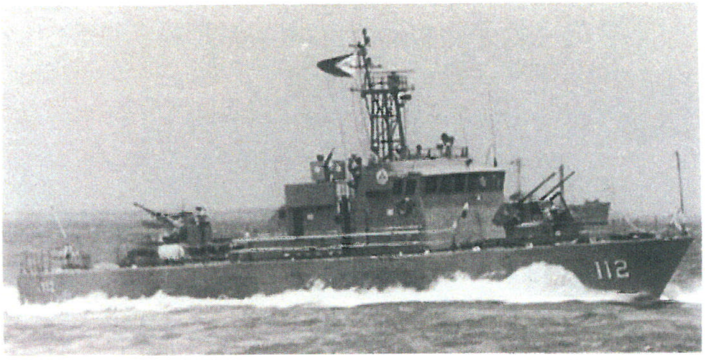
BAGONG LAKAS *1993, Philippine Navy*

6 TOMAS BATILO (SEA DOLPHIN) CLASS (FAST ATTACK CRAFT) (PBF)

TOMAS BATILO PG 110
BONNY SERRANO PG 111
BIENVENIDO SALTING PG 112
SALVADOR ABCEDE PG 114
RAMON AGUIRRE PG 115
NICOLAS MAHUSAY PG 116

Displacement, tons: 150 full load
Dimensions, feet (metres): 121.4 × 22.6 × 5.6 *(37 × 6.9 × 1.7)*
Main machinery: 2 MTU 20V-538TB91 diesels; 9,000 hp(m) *(6.71 MW)* sustained; 2 shafts
Speed, knots: 38. **Range, miles:** 600 at 20 kt
Complement: 31 (5 officers)
Guns: 2 Emerson Electric 30 mm (twin); 1,200 rds/min combined to 6 km *(3.2 n miles)*; weight of shell 0.35 kg.
1 Bofors 40 mm/60. 2 Oerlikon 20 mm.
Weapons control: Optical director.
Radars: Surface search: Raytheon 1645; I-band.

Comment: Transferred from South Korea on 15 June 1995. Part of the PKM 200 series. Different armament to South Korean ships of the same class. Plans to modernise these craft during 2002-03 appear to have been suspended. ***VERIFIED***



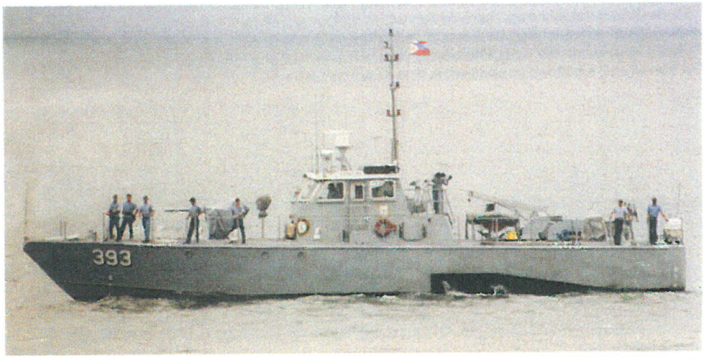
BIENVENIDO SALTING *6/1996, Philippine Navy*

22 JOSÉ ANDRADA CLASS (COASTAL PATROL CRAFT) (PB)

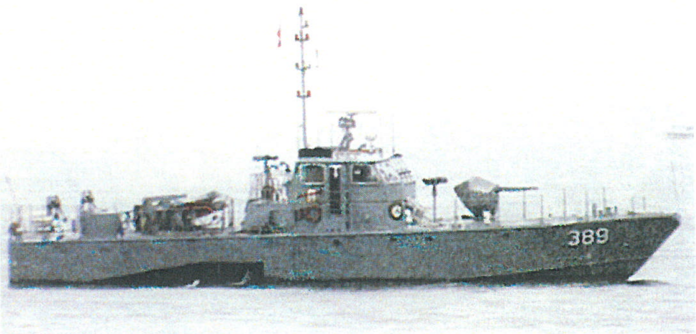
JOSÉ ANDRADA PG 370
ENRIQUE JURADO PG 371
ALFREDO PECKSON PG 372
SIMEON CASTRO PG 374
CARLOS ALBERT PG 375
HERACLEO ALANO PG 376
LIBERATO PICAR PG 377
HILARIO RUIZ PG 378
RAFAEL PARGAS PG 379
NESTOR REINOSO PG 380
DIOSCORO PAPA PG 381
ISMAEL LOMIBAO PG 383
LEOVIGILDO GANTIOQUE PG 384
FEDERICO MARTIR PG 385
FILIPINO FLOJO PG 386
ANASTACIO CACAYORIN PG 387
MANUEL GOMEZ PG 388
TESTIMO FIGURACION PG 389
JOSÉ LOOR SR PG 390
JUAN MAGLUYAN PG 392
FLORENCA NUNO PG 393
FELIX APOLINARIO PG 395

Displacement, tons: 56 full load
Dimensions, feet (metres): 78 × 20 × 5.8 *(23.8 × 6.1 × 1.8)*
Main machinery: 2 Detroit 16V-92TA diesels; 1,380 hp *(1.03 MW)* sustained; 2 shafts
Speed, knots: 28. **Range, miles:** 1,200 at 12 kt
Complement: 8-12 (1 officer)
Guns: 1 Bushmaster 25 mm or Bofors 40 mm/60.
4—12.7 mm Mk 26 MGs. 2—7.62 mm M60 MGs.
Radars: Surface search: Raytheon SPS-64(V)2; I-band.

Comment: There are four batches of this class. Batch I (PCF 370-378), Batch II (PCF 379-390), Batch III (PCF 392-393) and Batch IV (PCF 395). The main difference between batches include weapons, electronics and accommodation. First four ordered from Halter Marine in August 1989 under FMS and built at Equitable Shipyards, New Orleans, as were a further four ordered in 1990. Eight more ordered in March 1993 with co-production between Halter Marine and AG&P Shipyard, Batangas. An additional three were ordered in 1995. Built to US Coast Guard standards with an aluminium hull and superstructure. The main gun may be fitted in all after some minor modifications. PG 392 delivered in March 1998, PG 393 in July 1998 and PG 395 on 10 October 2000. ***VERIFIED***



FLORENCA NUNO *5/2000, van Ginderen Collection* / 0105227



TESTIMO FIGURACION *5/2000, M Declerck* / 0105226

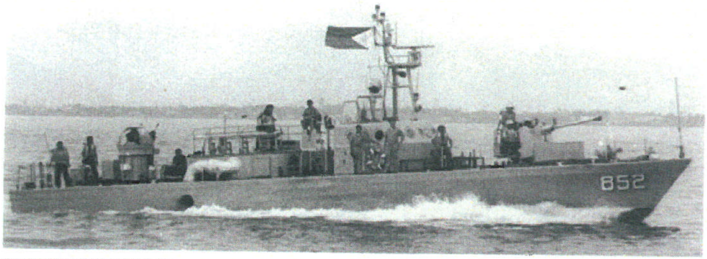
10 CONRADO YAP (SEA HAWK/KILLER) CLASS (COASTAL PATROL CRAFT) (PBF)

CONRADO YAP PG 840
TEDORICO DOMINADO JR PG 842
COSME ACOSTA PG 843
JOSÉ ARTIAGA JR PG 844
NICANOR JIMENEZ PG 846
LEOPOLDO REGIS PG 847
LEON TADINA PG 848
LORETO DANIPOG PG 849
APOLLO TIANO PG 851
SULPICIO FERNANDEZ PG 853

Displacement, tons: 74.5 full load
Dimensions, feet (metres): 83.7 × 17.7 × 6.2 *(25.5 × 5.4 × 1.9)*
Main machinery: 2 MTU 16V-538TB91 diesels; 5,000 hp(m) *(3.72 MW)*; 2 shafts
Speed, knots: 38. **Range, miles:** 290 at 20 kt
Complement: 15 (3 officers)
Guns: 1 Bofors 40 mm/60. 2 Oerlikon 20 mm (twin) Mk 16.
Radars: Surface search: Raytheon 1645; I-band.

Comment: Type PK 181 built by Korea Tacoma and Hyundai 1975-78. Twelve craft transferred from South Korea 19 June 1993. Eight were commissioned 23 June 1993 and a further four on 23 June 1994. However PC 845 and PC 852 have not been reactivated and are probably used as spares.

VERIFIED



CONRADO YAP CLASS *1993, Philippine Navy*

SURVEY AND RESEARCH SHIPS

Notes: (1) Survey ships are operated by Coast and Geodetic Survey of Ministry of National Defence and are not naval.
(2) Two research ships *Fort San Antonio* (AM 700) and *Fort Abad* (AM 701) were acquired in 1993.

AUXILIARIES

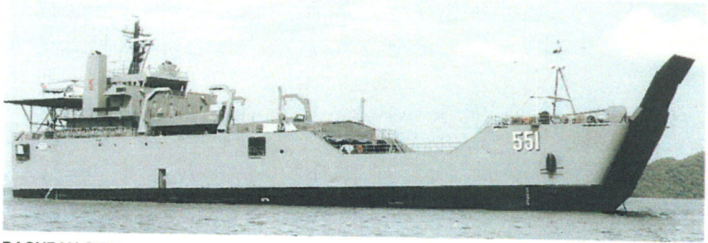
Notes: All LSTs, LSVs, LCMs and LCUs are classified as Transports.

2 BACOLOD CITY (FRANK S BESSON) CLASS (LSVH)

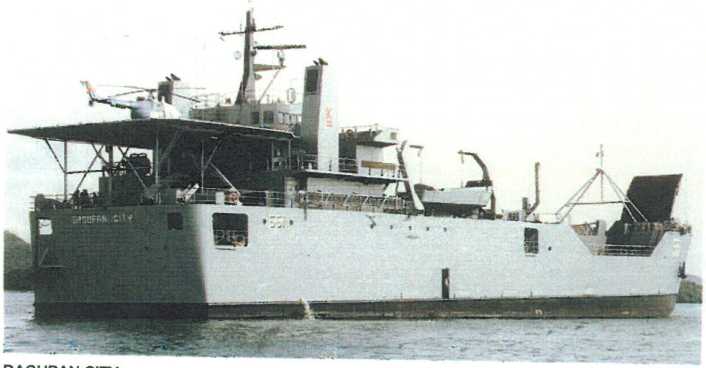
Name	*No*	*Builders*	*Commissioned*
BACOLOD CITY	LC 550	Moss Point Marine	1 Dec 1993
DAGUPAN CITY (ex-*Cagayan De Oro City*)	LC 551	Moss Point Marine	5 Apr 1994

Displacement, tons: 4,265 full load
Dimensions, feet (metres): 272.8 × 60 × 12 *(83.1 × 18.3 × 3.7)*
Main machinery: 2 GM EMD 16V-645E6 diesels; 5,800 hp *(4.32 MW)* sustained; 2 shafts; bow thruster; 250 hp *(187 kW)*
Speed, knots: 11.6. **Range, miles:** 6,000 at 11 kt
Complement: 30 (6 officers)
Military lift: 2,280 tons (900 for amphibious operations) of vehicles, containers or cargo, plus 150 troops; 2 LCVPs on davits
Radars: Navigation: Raytheon SPS-64(V)2; I-band.
Helicopters: Platform for 1 BO 105C.

Comment: Contract announced by Trinity Marine 3 April 1992 for two ships with an option on a third which was not taken up. Ro-ro design with 10,500 sq ft of deck space for cargo. Capable of beaching with 4 ft over the ramp on a 1 : 30 offshore gradient with a 900 ton cargo. Similar to US Army vessels but with only a bow ramp. The stern ramp space is used for accommodation for 150 troops and a helicopter platform is fitted over the stern. ***VERIFIED***



DAGUPAN CITY *12/1999, Sattler/Steele* / 0081543



DAGUPAN CITY *12/1999, Sattler/Steele* / 0081544

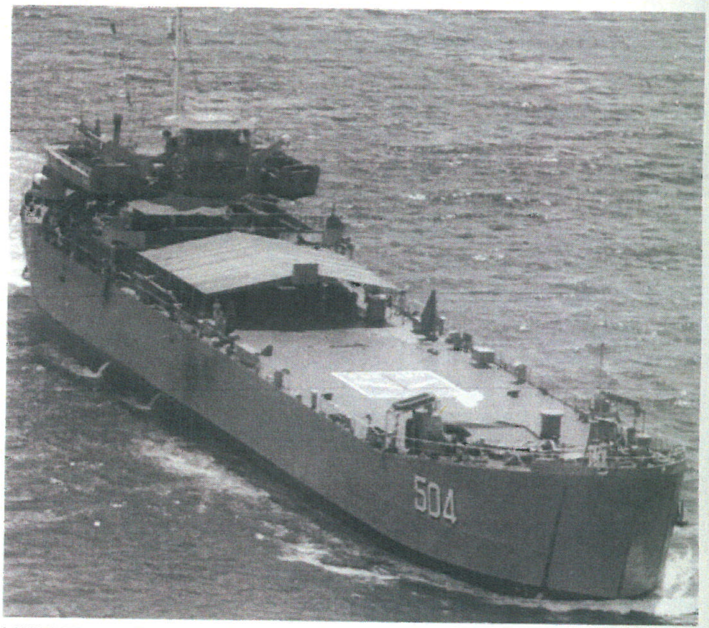
5 LST 512-1152 CLASS (TRANSPORT SHIPS) (LST)

Name	*No*	*Commissioned*
ZAMBOANGA DEL SUR (ex-*Cam Ranh*, ex-*Marion County* LST 975)	LT 86	3 Feb 1945
SOUTH COTABATO (ex-*Cayuga County* LST 529)	LT 87	28 Feb 1944
LAGUNA (ex-*T-LST 230*)	LT 501	3 Nov 1943
LANAO DEL NORTE (ex-*T-LST 566*)	LT 504	29 May 1944
KALINGA APAYAO (ex-*Can Tho*, ex-*Garrett County* AGP 786, ex-LST 786)	LT 516 (ex-AE 516)	28 Aug 1944

Displacement, tons: 1,620 standard; 2,472 beaching; 4,080 full load
Dimensions, feet (metres): 328 × 50 × 14 *(100 × 15.2 × 4.3)*
Main machinery: 2 GM 12-567A diesels; 1,800 hp *(1.34 MW)*; 2 shafts
Speed, knots: 10
Complement: Varies-approx 60-110 (depending upon employment)
Military lift: 2,100 tons. 16 tanks or 10 tanks plus 200 troops
Guns: 6 US/Bofors 40 mm (2 twin, 2 single) or 4 Oerlikon 20 mm (in refitted ships).
Radars: Navigation: Raytheon SPS-64(V)2; I-band.

Programmes: Transferred from US Navy in 1976 with exception of LT 87 and LT 516 which were used as light craft repair ships in South Vietnam and have retained amphibious capability (transferred to Vietnam 1970 and to Philippines 1976, acquired by purchase 5 April 1976). LT 86 transferred (grant aid) 17 November 1975. LT 501 and 504 commissioned in Philippine Navy 8 August 1978 and LT 507 on 18 October 1978.
Modernisation: Several have had major refits including replacement of frames and plating as well as engines and electrics and provision for four 20 mm guns to replace the 40 mm guns.
Structure: Some of the later ships have tripod masts, others have pole masts.
Operational: All are used for general cargo work in Philippine service. Fourteen were deleted in 1989 and one sank in 1991. Two paid off in 1992 and one in 1993. *South Cotabato* was also paid off in 1993 but brought back in to service in 1994. *Benguet* broke down in the South China Sea in April 1995 and had to be taken in tow. *Benguet* again grounded in the Spratly Islands on 3 November 1999 and after a month on the rocks is probably beyond economical repair. One further ship, *Sierra Madre* is reported to be used as an observation post in the Spratly Islands. Replacements are needed but have not been given priority.

VERIFIED



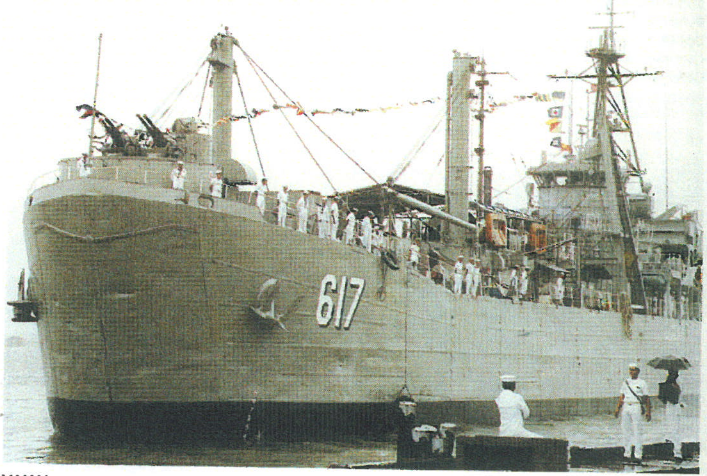
LANAO DEL NORTE *1993, Philippine Navy*

1 ACHELOUS CLASS (REPAIR SHIP) (ARL)

Name	*No*	*Builders*	*Commissioned*
YAKAL (ex-*Satyr* ARL 23, ex-*LST 852*)	AD 617 (ex-AR 517)	Chicago Bridge & Iron	20 Nov 1944

Displacement, tons: 4,342 full load
Dimensions, feet (metres): 328 × 50 × 14 *(100 × 15.2 × 4.3)*
Main machinery: 2 GM 12-567A diesels; 1,800 hp *(1.34 MW)*; 2 shafts
Speed, knots: 11.6
Complement: 220 approx
Guns: 4 US/Bofors 40 mm (quad). 10 Oerlikon 20 mm (5 twin).

Comment: Transferred from the US to the Philippines on 24 January 1977 by sale. (Originally to South Vietnam 30 September 1971.) Converted during construction. Extensive machine shop, spare parts stowage, and logistic support. ***VERIFIED***

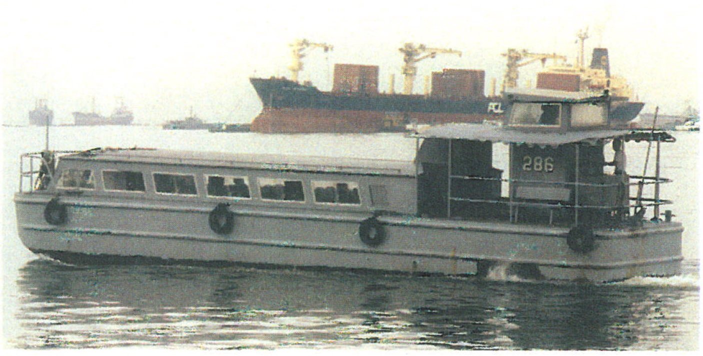


YAKAL *1994, Philippine Navy* / 0081545

42 LCM/LCU

Comment: Ex-US minor landing craft mostly transferred in the mid-1970s. 11 LCM 6, five LCM 8, eight LCU, 14 RUC and two LCVP. More LCVP are building at Cavite and two LCUs were reported delivered from South Korea in late 1995. More LCMs are planned. Used as transport vessels.

VERIFIED



LCU 286 *5/1998, van Ginderen Collection* / 0052706

1 ALAMOSA CLASS (SUPPLY SHIP) (AK)

Name	*No*	*Builders*	*Commissioned*
MACTAN (ex-*Kukui*, ex-*Colquith*)	AC 90 (ex-TK 90)	Froemming, Milwaukee	22 Sep 1944

Displacement, tons: 2,500 light; 7,570 full load
Dimensions, feet (metres): 338.5 × 50 × 18 *(103.2 × 15.2 × 5.5)*
Main machinery: 1 Nordberg diesel; 1,700 hp *(1.27 MW)*; 1 shaft
Speed, knots: 11
Complement: 85
Guns: 2—12.7 mm MGs.

Comment: Transferred from the US Coast Guard on 1 March 1972. Used to supply military posts and lighthouses in the Philippine archipelago. Was to have been paid off in 1994 but has been kept in service.

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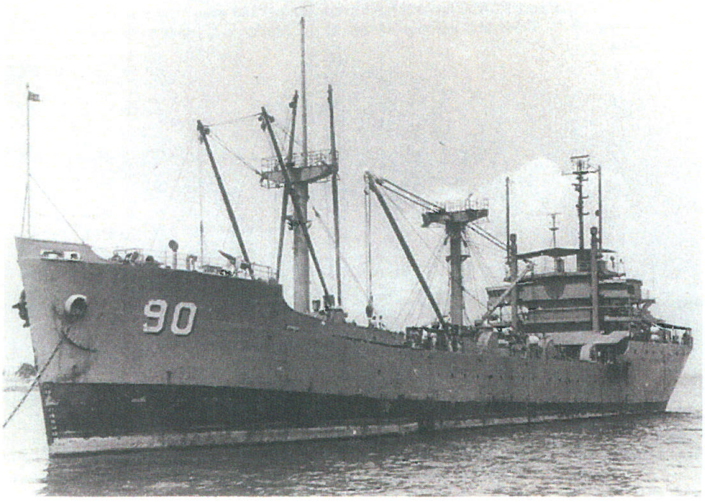

MACTAN *4/1996, Philippine Navy*

1 TRANSPORT VESSEL (AP)

Name	*No*	*Builders*	*Commissioned*
ANG PANGULO (ex-*The President*, ex-*Roxas*, ex-*Lapu-Lapu*)	AT 25 (ex-TP 777)	Ishikawajima, Japan	1959

Displacement, tons: 2,239 standard; 2,727 full load
Dimensions, feet (metres): 257.6 × 42.6 × 21 *(78.5 × 13 × 6.4)*
Main machinery: 2 Mitsui DE642/VBF diesels; 5,000 hp(m) *(3.68 MW)*; 2 shafts
Speed, knots: 18. **Range, miles:** 6,900 at 15 kt
Complement: 81 (8 officers)
Guns: 3 Oerlikon 20 mm/70 Mk 4. 8—7.62 mm MGs.
Radars: Navigation: RCA CRMN-1A-75; I-band.

Comment: Built as war reparation; launched in 1958. Was used as presidential yacht and command ship with accommodation for 50 passengers. Originally named *Lapu-Lapu* after the chief who killed Magellan; renamed *Roxas* on 9 October 1962 after the late Manuel Roxas, the first President of the Philippines Republic. Renamed *The President* in 1967 and *Ang Pangulo* in 1975. In early 1987 was earmarked to transport President Marcos to Hong Kong and exile. The ship is now used as an attack transport, and still as a Presidential Yacht.

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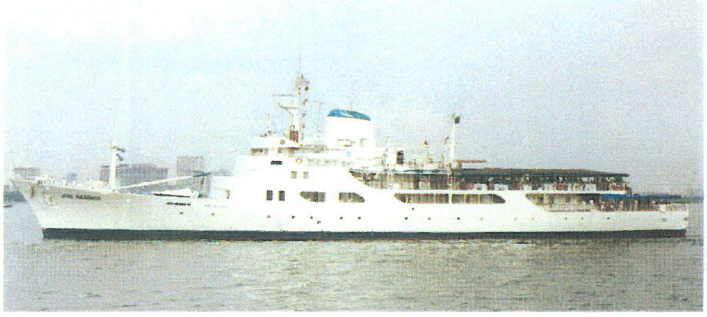

ANG PANGULO *5/1998, John Mortimer* / 0081546

2 YW TYPE (WATER TANKERS) (AWT)

Name	*No*	*Builders*	*Commissioned*
LAKE BULUSAN	AW 33 (ex-YW 111)	Marine Iron, Duluth	1 Aug 1945
LAKE PAOAY	AW 34 (ex-YW 130)	Leathem D Smith, Sturgeon Bay	28 Aug 1945

Displacement, tons: 1,237 full load
Dimensions, feet (metres): 174 × 32.7 × 13.2 *(53 × 10 × 4)*
Main machinery: 2 GM 8-278A diesels; 1,500 hp *(1.12 MW)*; 2 shafts
Speed, knots: 7.5
Complement: 29
Cargo capacity: 200,000 gallons
Guns: 1 Bofors 40/60. 1 Oerlikon 20 mm.

Comment: Basically similar to YOG type but adapted to carry fresh water. Transferred from the US to the Philippines on 16 July 1975.

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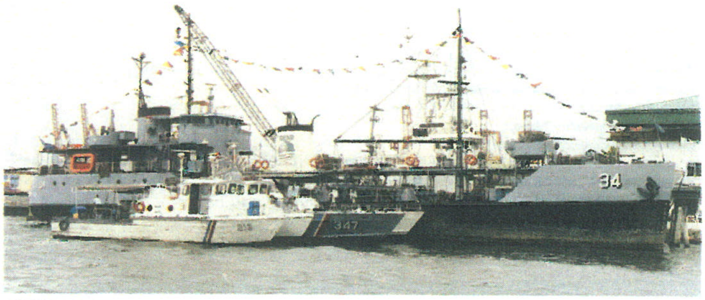

LAKE PAOAY *5/1998, van Ginderen Collection* / 0052708

2 YOG TYPE (TANKERS) (YO)

Name	*No*	*Builders*	*Commissioned*
LAKE BUHI (ex-*YOG 73*)	AF 78 (ex-YO 78)	Puget Sound, Bremerton	28 Nov 1944
LAKE TAAL (ex-*YOG*)	AF 72 (ex-YO 72)	Puget Sound, Bremerton	14 Apr 1945

Displacement, tons: 447 standard; 1,400 full load
Dimensions, feet (metres): 174 × 32.7 × 13.2 *(53 × 10 × 4)*
Main machinery: 2 GM 8-278A diesels; 1,500 hp *(1.12 MW)*; 2 shafts
Speed, knots: 8
Complement: 28
Cargo capacity: 6,570 barrels dieso and gasoline
Guns: 2 Oerlikon 20 mm/70 Mk 4.

Comment: Former US Navy gasoline tankers. Transferred in July 1967 on loan and by purchase 5 March 1980.

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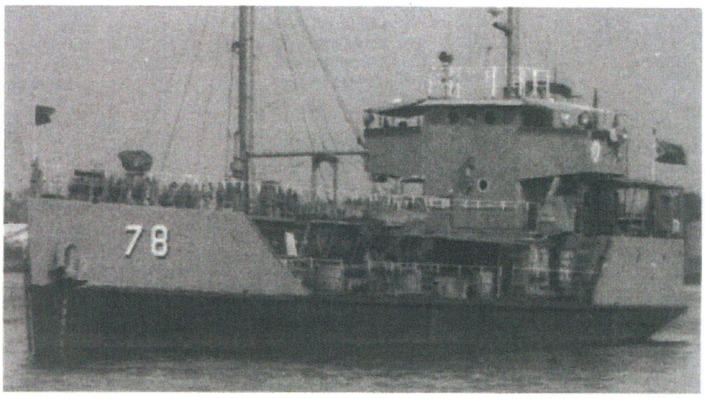


LAKE BUHI *1993, Philippine Navy*

4 FLOATING DOCKS (YFD)

YD 200 (ex-*AFDL 24*) **YD 204** (ex-*AFDL 20*) **YD 205** (ex-*AFDL 44*) — (ex-*AFDL 40*)

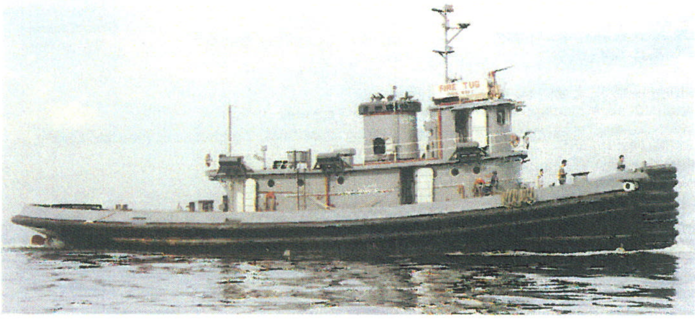
Comment: Floating steel dry docks built in the USA; all are former US Navy units with *YD 200* transferred in July 1948, *YD 204* in October 1961 (sale 1 August 1980), *YD 205* in September 1969 and *AFDL 40* in 1994.

Capacities: *YD 205*, 2,800 tons; *YD 200* and *YD 204*, 1,000 tons. In addition there are two floating cranes, *YU 206* and *YU 207*, built in US in 1944 and capable of lifting 30 tons.

VERIFIED

TUGS

Notes: A number of harbour tugs have been acquired from the US. The latest type is ex-Army of 390 tons, a speed of 12 kt and a bollard pull of 12 tons.



HARBOUR TUG *5/1998, John Mortimer* / 0052709

COAST GUARD

Notes: (1) Some of the PCF craft listed are manned by the Navy as is the buoy tender *Mangyan*.
(2) The Coast Guard also operates one LCM 6 (BM 270), one LCVP (BV 182) and a River Utility Craft VU 463.
(3) A buoy tender *Corregidor* AG 891 of 1,100 tons was built and commissioned 2 March 1998 by Niigata Engineering.
(4) Ten Rodman 101 and four Rodman 38 have been ordered for delivery from 2003.

4 SAN JUAN CLASS (WPBO)

Name	*No*	*Builders*	*Commissioned*
SAN JUAN	001	Tenix Defence Systems	19 June 2000
EDSA II (ex-*Don Emilio*)	002 (ex-419)	Tenix Defence Systems	14 Dec 2000
PAMPANGA	003	Tenix Defence Systems	30 Jan 2003
BATANGAS	004	Tenix Defence Systems	8 Aug 2003

Displacement, tons: 500 full load
Dimensions, feet (metres): 183.7 × 34.5 × 9.8 *(56 × 10.5 × 3)*
Main machinery: 2 Caterpillar 3612 diesels; 4,800 hp(m) *(3.53 MW)* sustained; 2 shafts; cp props
Speed, knots: 24.5. **Range, miles:** 3,000 at 15 kt
Complement: 38
Radars: Navigation: I-band.
Helicopters: Platform for one light.

Comment: First reported ordered in mid-1997. Construction of first of class started in February 1999. Steel hull and aluminium superstructure. Primarily used for SAR with facilities for 300 survivors. Fire-fighting and pollution control equipment included. A contract for a further two vessels was finalised in December 2001.

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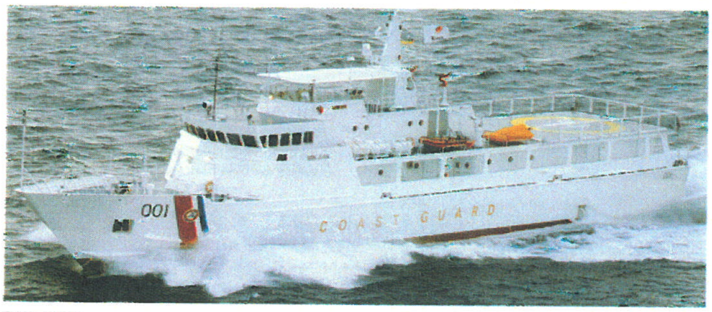


SAN JUAN *6/2000, Tenix Shipbuilding* / 0105228

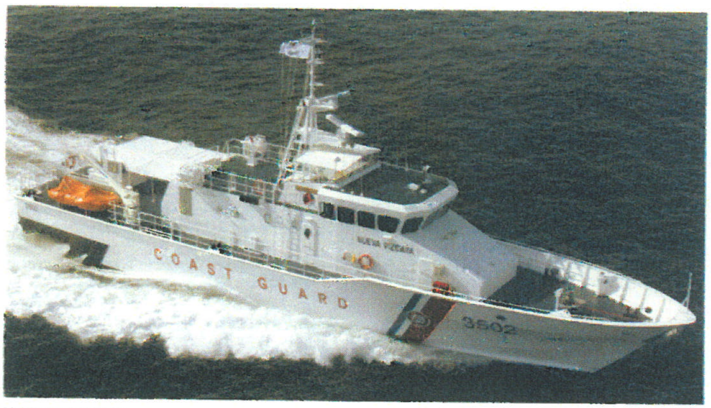
4 + (10) ILOCOS NORTE CLASS (PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
ILOCOS NORTE	3501	Tenix Defence Systems	9 May 2003
NUEVA VIZCAYA	3502	Tenix Defence Systems	8 Aug 2003
ROMBLON	3503	Tenix Defence Systems	20 Oct 2003
DAVAO DEL NORTE	3504	Tenix Defence Systems	16 Jan 2004

Displacement, tons: 115
Dimensions, feet (metres): 114.9 × 24.0 × 7.5 *(35.0 × 7.3 × 2.3)*
Main machinery: 2 diesels; 2 shafts. 1 loiter waterjet
Speed, knots: 23. **Range, miles:** 2,000 at 12 kt
Complement: 11
Guns: 2—30 mm (1 twin). 2—12.7 mm MGs.
Radars: Navigation: I-band.

Comment: Contract on 9 December 2001 for the construction of four search and rescue vessels with an option for a further ten craft. Based on 'Bay' class design with steel hull and aluminium superstructure.

NEW ENTRY



NUEVA VIZCAYA *8/2003*, Tenix* / 0569803

1 BALSAM CLASS (TENDER) (AKLH)

Name	*No*	*Builders*	*Commissioned*
KALINGA (ex-*Redbud, WAGL 398,* ex-*Redbud, T-AKL 398*)	AG 89	Marine Iron, Duluth	2 May 1944

Displacement, tons: 950 standard; 1,041 full load
Dimensions, feet (metres): 180 × 37 × 13 *(54.8 × 11.3 × 4)*
Main machinery: Diesel-electric; 2 diesels; 1,710 hp *(1.28 MW)*; 2 generators; 1 motor; 1,200 hp *(895 kW)*; 1 shaft
Speed, knots: 12. **Range, miles:** 3,500 at 7 kt
Complement: 53
Guns: 2—12.7 mm MGs.
Radars: Navigation: Sperry SPS-53; I/J-band.
Helicopters: Platform for 1 light.

Comment: Originally US Coast Guard buoy tender (WAGL 398). Transferred to US Navy on 25 March 1949 as AG 398 and then to the Philippine Navy 1 March 1972. One 20 ton derrick. New engines fitted.

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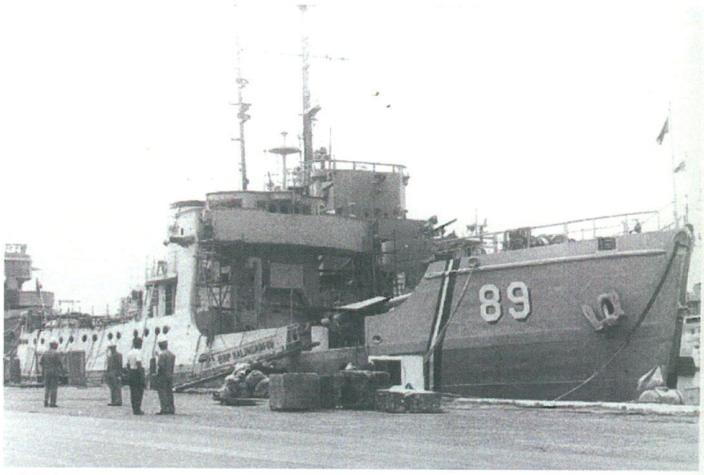

KALINGA *1994, Philippine Navy*

3 BUOY TENDERS (ABU)

CAPE BOJEADOR (ex-*FS 203*) AE 46 (ex-TK 46)
LIMASAWA (ex-*Nettle* WAK 129, ex-*FS 169*) AE 79 (ex-TK 79)
MANGYAN (ex-*Nasami*, ex-*FS 408*) AT 71 (ex-AE 71, ex-AS 71)

Displacement, tons: 470 standard; 950 full load
Dimensions, feet (metres): 180 × 32 × 10 *(54.9 × 9.8 × 3)*
Main machinery: 2 GM 6-278A diesels; 1,120 hp *(836 kW)*; 2 shafts
Speed, knots: 10. **Range, miles:** 4,150 at 10 kt
Complement: 50
Cargo capacity: 400 tons
Guns: 1—12.7 mm MG can be carried.
Radars: Navigation: RCA CRMN 1A 75; I-band.

Comment: Former US Army FS 381 and FS 330 type freight and supply ships built in 1943-44. First two are employed as tenders for buoys and lighthouses. *Mangyan* transferred 24 September 1976 by sale. *Limasawa* acquired by sale 31 August 1978. One 5 ton derrick. *Cape Bojeador* paid off in 1988 but was back in service in 1991 after a major overhaul. *Mangyan* reclassified AT in 1993 and belongs to the Navy. Masts and superstructures have minor variations.

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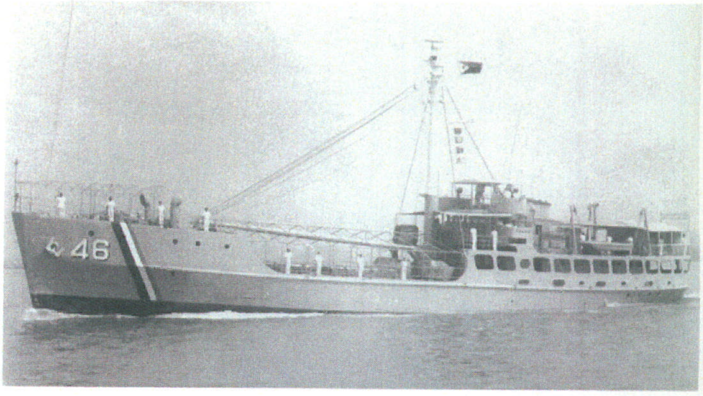


CAPE BOJEADOR *1993, Philippine Navy*

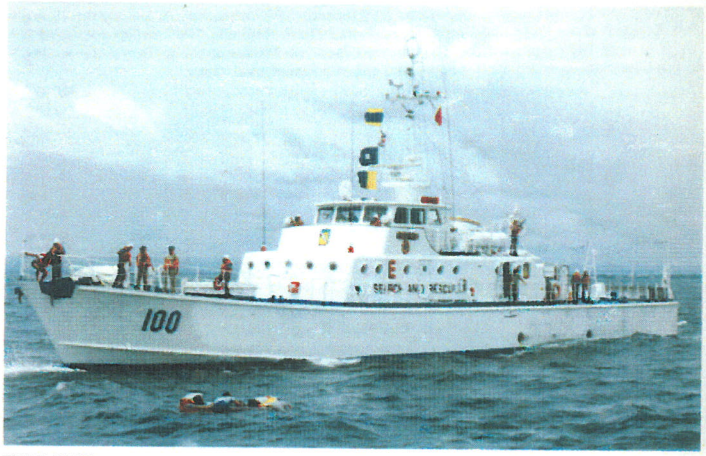
2 LARGE PATROL CRAFT (PB)

Name	*No*	*Builders*	*Commissioned*
TIRAD PASS	AU 100 (ex-SAR 100)	Sumidagawa, Japan	1974
BESSANG PASS	AU 75 (ex-SAR 99)	Sumidagawa, Japan	1974

Displacement, tons: 279 full load
Dimensions, feet (metres): 144.3 × 24.3 × 4.9 *(44 × 7.4 × 1.5)*
Main machinery: 2 MTU 12V 538 TB82 diesels; 4,050 hp(m) *(2.98 MW)*; 2 shafts
Speed, knots: 27.5. **Range, miles:** 2,300 at 14 kt
Complement: 32
Guns: 4—12.7 mm (2 twin) MGs.

Comment: Paid for under Japanese war reparations. Similar type as *Emilio Aguinaldo*. *Bessang Pass* grounded in 1983 but was recovered.

VERIFIED



TIRAD PASS *1992, Philippine Navy* / 0081548

4 PGM-39 CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
AGUSAN (ex-*PGM 39*)	PG 61	Tacoma, WA	Mar 1960
CATANDUANES (ex-*PGM 40*)	PG 62	Tacoma, WA	Mar 1960
ROMBLON (ex-*PGM 41*)	PG 63	Peterson Builders, WI	June 1960
PALAWAN (ex-*PGM 42*)	PG 64	Tacoma, WA	June 1960

Displacement, tons: 124 full load
Dimensions, feet (metres): 100.3 × 18.6 × 6.9 *(30.6 × 5.7 × 2.1)*
Main machinery: 2 MTU MB 12V 493 TY57 diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 17. **Range, miles:** 1,400 at 11 kt
Complement: 26-30
Guns: 2 Oerlikon 20 mm. 2—12.7 mm MGs. 1—81 mm mortar.
Radars: Surface search: Alpelco DFR-12; I/J-band.

Comment: Steel-hulled craft built under US military assistance programmes. Assigned US PGM-series numbers while under construction. Transferred upon completion. These craft are lengthened versions of the US Coast Guard 95 ft 'Cape' class patrol boat design. Operational status is doubtful.

UPDATED

AGUSAN *1994, Philippine Navy* / 0081550

10 PCF 46 CLASS (COASTAL PATROL CRAFT) (PB)

DB 411 **DB 417** **DB 422** **DB 429** **DB 432**
DB 413 **DB 419** **DB 426** **DB 431** **DB 435**

Displacement, tons: 21 full load
Dimensions, feet (metres): 45.9 × 14.5 × 3.3 *(14 × 4.4 × 1)*
Main machinery: 2 Cummins diesels; 740 hp *(552 kW)*; 2 shafts
Speed, knots: 25. **Range, miles:** 1,000 at 15 kt
Complement: 8
Guns: 2—12.7 mm (twin) MGs. 1—7.62 mm M60 MG.
Radars: Surface search: Kelvin Hughes 17; I-band.

Comment: Survivors of a class built by de Havilland Marine, Sydney NSW between 20 November 1974 and 8 February 1975 (DF series). In August 1975 further craft of this design (DB series) were ordered from Marcelo Yard, Manila to be delivered 1976-78 at the rate of two per month. By the end of 1976, 25 more had been completed but a serious fire in the shipyard destroyed 14 new hulls and halted production. Many deleted.

VERIFIED

DB 435 *1993, Philippine Navy*

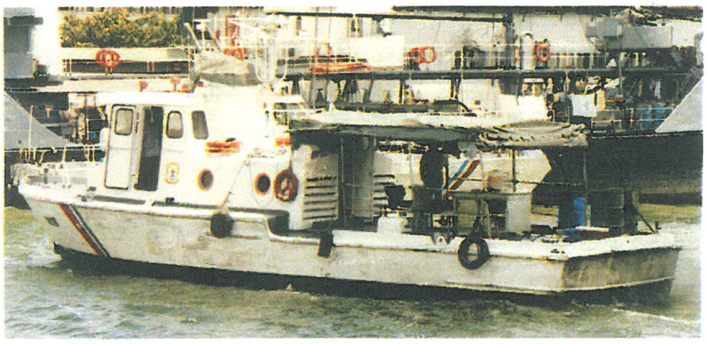
12 PCF 50 (SWIFT Mk 1 and Mk 2) CLASS (COASTAL PATROL CRAFT) (PB)

DF 300-303 **DF 305** **DF 307-313**

Displacement, tons: 22.5 full load
Dimensions, feet (metres): 50 × 13.6 × 4 *(15.2 × 4.1 × 1.2)* (Mk 1) 51.3 × 13.6 × 4 *(15.6 × 4.1 × 1.2)* (Mk 2)
Main machinery: 2 GM 12-71 diesels; 680 hp *(504 kW)* sustained; 2 shafts
Speed, knots: 28. **Range, miles:** 685 at 16 kt
Complement: 6
Guns: 2—12.7 mm (twin) MGs. 2 M-79 40 mm grenade launchers.
Radars: Surface search: Decca 202; I-band.

Comment: Most built in the USA. Built for US military assistance programmes and transferred in the late 1960s. Some built in 1970 in the Philippines (ferro-concrete) with enlarged superstructure. *DF 300-303* are Swift Mk 1. *DF 305* and *DF 307-313* are Swift Mk 2. *DF 303, 309, 311* and *312* belong to the Navy.

VERIFIED



DF 308 *5/1998, van Ginderen Collection* / 0081552

14 PCF 65 (SWIFT Mk 3) CLASS (COASTAL PATROL CRAFT) (PB)

DF 325-332 **DF 334** **DF 347** **DF 351-354**

Displacement, tons: 29 standard; 37 full load
Dimensions, feet (metres): 65 × 16 × 3.4 *(19.8 × 4.9 × 1)*
Main machinery: 3 GM 12V-71TI diesels; 840 hp *(616 kW)* sustained; 3 shafts
Speed, knots: 25
Complement: 8
Guns: 2—12.7 mm MGs.
Radars: Surface search: Koden; I-band.

Comment: Improved Swift type inshore patrol boats built by Sewart for the Philippine Navy. Delivered 1972-76. *DF 351-354* belong to the Navy. Some that were laid up have been returned to service. New radars fitted.

VERIFIED

DF 354 (Navy) *5/1998, John Mortimer* / 0081551

DF 347 (Coast Guard) *5/1998, Sattler & Steele* / 0052711

3 DE HAVILLAND CLASS (PB)

DF 321-323

Displacement, tons: 25 full load
Dimensions, feet (metres): 54.8 × 16.4 × 4.3 *(16.7 × 5 × 1.3)*
Main machinery: 2 diesels; 740 hp *(552 kW)*; 2 shafts
Speed, knots: 25. **Range, miles:** 450 at 14 kt
Complement: 8
Guns: 2—12.7 mm MGs.

Comment: Locally built in the mid-1980s. Others of this type have been paid off and numbers are uncertain.

VERIFIED

DF 321 *5/1998, van Ginderen Collection* / 0052713

11 CUTTERS (PBR)

CGC 103 **CGC 110** **CGC 115** **CGC 128-130** **CGC 132-136**

Displacement, tons: 13 full load
Dimensions, feet (metres): 40 × 13.6 × 3 *(12.2 × 4.1 × 0.9)*
Main machinery: 2 Detroit diesels; 560 hp *(418 kW)*; 2 shafts
Speed, knots: 28
Complement: 5
Guns: 1—12.7 mm MG. 1—7.62 mm MG.

Comment: Built at Cavite Yard from 1984. One deleted in 1994. Used for harbour patrols. There are also some small unarmed Police craft.

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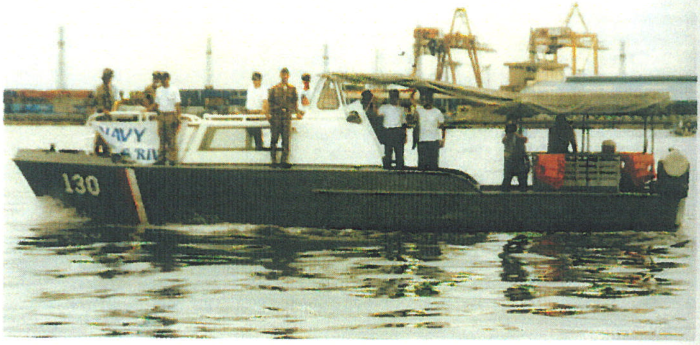

CGC 130
1994, Philippine Navy / 0081553

Poland

MARYNARKA WOJENNA

Country Overview

The modern democratic era of the Republic of Poland began in 1989 after forty-two years of communist rule. Situated in central Europe, the country has an area of 120,725 square miles and is bordered to the north by Russia (Kaliningrad), to the east by Lithuania, Belarus, and Ukraine, to the south by the Czech Republic and Slovakia and to the west by Germany. It has a 265 n mile coastline with the Baltic Sea. Warsaw is the capital and largest city while Gdansk, Szczecin and Gdynia are the principal ports. Territorial seas (12 n miles) are claimed but while it has claimed a 200 n mile EEZ, its limits have not been fully defined by boundary agreements.

Headquarters Appointments

Commander-in-Chief:
Admiral Roman Krzyzelewski
Deputy Commander-in-Chief:
Vice Admiral Jedrzej Czajkowski
Chief of Naval Staff:
Rear Admiral Zbigniew Badenski
Chief of Naval Logistics:
Rear Admiral Zbigniew Popek
Chief of Naval Training:
Rear Admiral Marek Bragoszewski

Diplomatic Representation

Defence and Naval Attaché in London:
Colonel A Adamowicz

Personnel

(a) 2004: 14,100
(b) 12 months' national service

Prefix to Ships' Names

ORP, standing for *Okret Rzeczypospolitej Polskiej*

Strength of the Fleet

Type	*Active*	*Building*
Submarines—Patrol	4	1
Frigates	2	—
Corvettes	8	2 (4)
Fast Attack Craft—Missile	3	—
Large Patrol Craft	6	—
Coastal Patrol Craft	11	—
Minesweepers—Coastal	20	—
Minehunters—Coastal	2	(14)
LSTs	6	—
LCUs	3	—
Survey and Research Ships	3	—
AGIs	2	—
Training Ships	4	—
Salvage Ships	4	—
Tankers	2	—
Logistic Support Ship	1	—

Sea Department of the Border Guard (MOSG)

A para-naval force, subordinate to the Minister of the Interior.

Bases

Gdynia (3rd Naval Flotilla), Hel (9th Coastal Defence Flotilla), Swinoujscie (8th Coastal Defence Flotilla), Kolobrzeg, Gdansk (Frontier Guard)

Naval Aviation

HQ at Gdynia
1st Wing at Gdynia (MiG-21, W-3, An-28)
2nd Wing at Darlowo (Mi-14, Mi-2, W-3)
3rd Wing at Siemirowice-Cewice (TS-11, B1-R, An-28)

Coast Defence

Two divisions with 24-57 mm guns.

DELETIONS

Submarines

2003	*Wilk, Dzik*

Destroyers

2003	*Warszawa*

Patrol Forces

2002	*Zwrotny, Nieueiety*
2003	*Puck, Darlowo*

Mine Warfare Forces

2002	*Rybitwa*

Survey and Research Ships

2003	*Zodiak*

Training Ships

2002	*Kadet, Elew*
2003	*Bryza*

Auxiliaries

2002	*Z3, Z9, Bolko, Semko*

PENNANT LIST

Submarines

291	Orzeł
292	Bielik
293	Kondor
294	Sókol
295	Sęp

Frigates

272	Generał Kazimierz Pułaski
273	Generał Tadeusz Kościuszko

Corvettes

240	Kaszub
421	Orkan
422	Piorun
423	Grom
434	Gornik
435	Hutnik
436	Metalowiec
437	Rolnik

Patrol Forces

351	Grozny
352	Wytrwaly
353	Zreczny
354	Zwinny
356	Zawziety
358	Czujny
431	Świnoujście
432	Dziewnów
433	Władysławowo

Mine Warfare Forces

621	Flaming
623	Mewa
624	Czajka
625	TR 25
626	TR 26
630	Goplo
631	Gardno
632	Bukowo
633	Dabie
634	Jamno
635	Mielno
636	Wicko
637	Resko
638	Sarbsko
639	Necko
640	Naklo
641	Druzno
642	Hancza
643	Mamry
644	Wigry
645	Sniardwy
646	Wdzydze

Amphibious Forces

811	Grunwald
821	Lublin
822	Gniezno
823	Krakow
824	Poznan
825	Torun
851	KD 11
852	KD 12
853	KD 13

Survey Ships and AGIs

261	Kopernik
262	Nawigator
263	Hydrograf
265	Heweliusz
266	Arctowski

Auxiliaries

251	Wodnik
253	Iskra
281	Piast
282	Lech
511	Kontradmiral X Czernicki
711	Podchorazy
R 11	Gniewko
R 14	Zbyszko
R 15	Macko
SD 11	Wrona
SD 12	Rys
SD 13	—
Z 1	Baltyk
Z 8	Meduza

Maritime Frontier Guard

SG 311	Kaper I
SG 312	Kaper II
SG 323	Zefir
SG 325	Tecza

SUBMARINES

3 + 1 SOKÓL (KOBBEN) CLASS (TYPE 207) (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
BIELIK (ex-*Svenner*)	292 (ex-S 309)	Rheinstahl – Nordseewerke, Emden	8 Sep 1966	27 Jan 1967	12 Jun 1967
KONDOR (ex-*Kunna*)	293 (ex-S 319)	Rheinstahl – Nordseewerke, Emden	3 Mar 1964	16 Jul 1964	29 Oct 1964
SOKÓL (ex-*Stord*)	294 (ex-S 308)	Rheinstahl – Nordseewerke, Emden	1 Apr 1966	2 Sep 1966	14 Feb 1967
SĘP (ex-*Skolpen*)	295 (ex-S 306)	Rheinstahl – Nordseewerke, Emden	1 Nov 1965	24 Mar 1966	17 Aug 1966

Displacement, tons: 459 standard; 524 dived
Dimensions, feet (metres): 155.5 × 15 × 14 *(47.4 × 4.6 × 4.3)*
Main machinery: Diesel-electric; 2 MTU 12V 493 AZ80 GA31L diesels; 1,200 hp(m) *(880 kW)* sustained; 1 motor; 1,800 hp(m) *(1.32 MW)* sustained; 1 shaft
Speed, knots: 12 surfaced; 18 dived
Range, miles: 5,000 at 8 kt (snorting)
Complement: 21 (5 officers)

Torpedoes: 8—21 in *(533 mm)* bow tubes.
Countermeasures: ESM: Argo radar warning.

Weapons control: Kongsberg MSI-70U TFCS.
Radars: Surface search: Kelvin Hughes 1007; I-band.
Sonars: Atlas Elektronik CSU 83; passive search and attack; medium/high frequency.

Programmes: Commissioned into the Norwegian Navy from 1964, the building cost was shared between the Norwegian and US governments. Decommissioned from the Norwegian Navy in 2001. Following announcement on 18 January 2002 *Sokól* recommissioned on 25 May 2002 and *Sęp* on 5 August 2002. *Bielik* recommissioned on 8 September 2003 and *Kondor* is to be transferred in 2004. The ex-*Kobben* is to be transferred for spares and as a floating training base. The contract also includes provision of in-service support. These submarines are understood to be a stop-gap measure to maintain a submarine capability until about 2012 when these may be replaced by the 'Viking' class.
Modernisation: All modernised at Urivale Shipyard, Bergen between 1989-1992.
Structure: A development of the German Type 205 class, they have a diving depth of 650 ft *(200 m)*. Pilkington optronics CK 30 search periscope.

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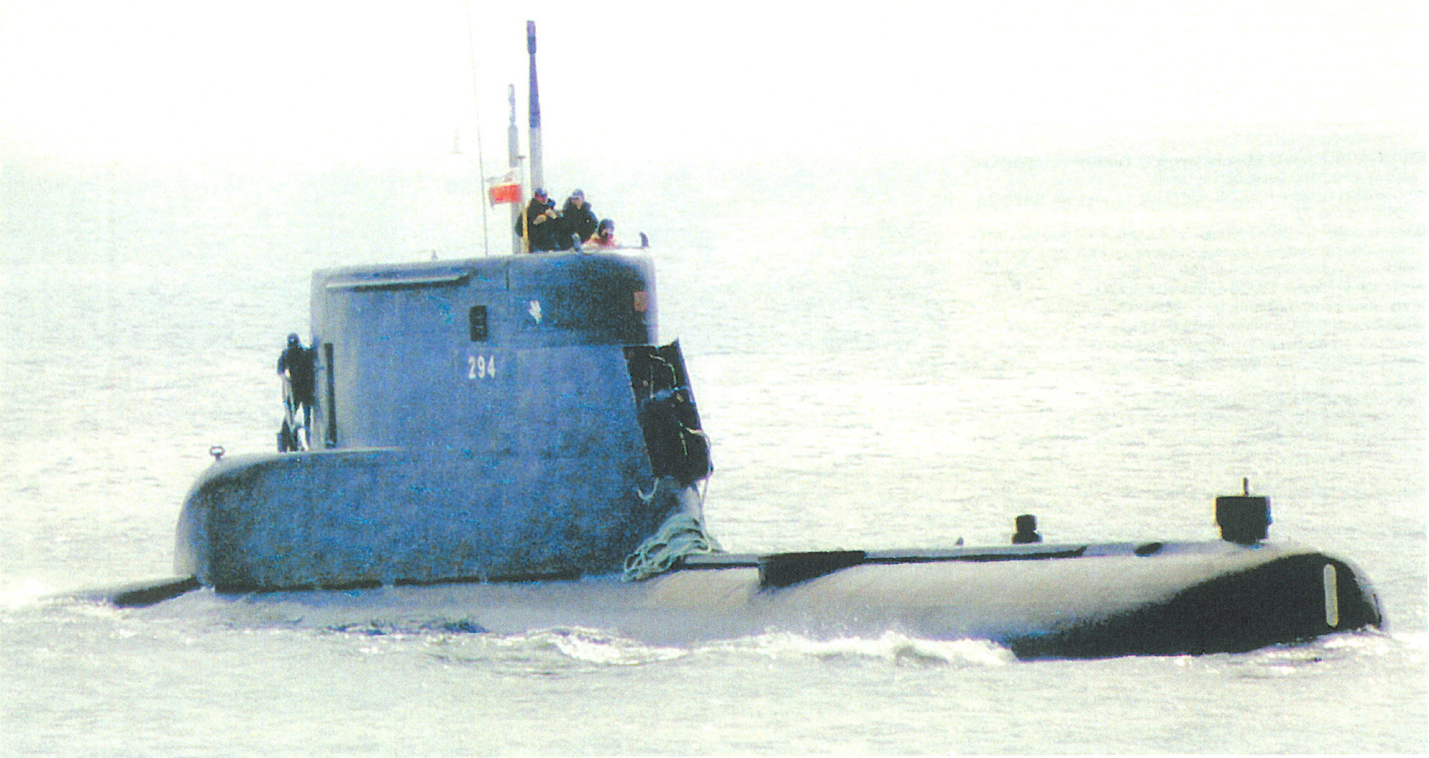

SOKÓL ***6/2003*, J Ciślak /*** 0567486

1 KILO CLASS (PROJECT 877EM) (SSK)

Name	*No*	*Builders*	*Commissioned*
ORZEŁ	291	Sudomekh, Leningrad	21 June 1986

Displacement, tons: 2,457 surfaced; 3,076 dived
Dimensions, feet (metres): 243.8 × 32.8 × 21.7 *(74.3 × 10 × 6.6)*
Main machinery: Diesel-electric; 2 DL 42M diesels; 3,650 hp(m) *(2.68 MW)*; 2 generators; 6 MW; 1 PG 141 motor; 5,900 hp(m) *(4.34 MW)*; 1 shaft; 2 auxiliary motors; 204 hp(m) *(150 kW)*; 1 economic speed motor; 130 hp *(95 kW)*
Speed, knots: 10 surfaced; 17 dived; 9 snorting
Range, miles: 6,000 at 7 kt snorting; 400 at 3 kt dived
Complement: 60 (16 officers)

Missiles: SAM: 8 SA-N-5 (Strela 2M).
Torpedoes: 6—21 in *(533 mm)* tubes. Combination of 53-65; anti-surface; passive/wake homing to 19 km *(10.3 n miles)* at 45 kt; warhead 300 kg and TEST-71; anti-submarine; active/passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 205 kg. 53-56 WA and SET 53 M can also be carried. Total of 18 torpedoes.
Mines: 24 in lieu of torpedoes.
Countermeasures: ESM: Brick Group (MRP-25); radar warning; Quad Loop HF D/F.
Weapons control: Murena MWU 110 TFCS.
Radars: Surface search: Racal Decca Bridgemaster; I-band.
Sonars: Shark Teeth (MGK-400); hull-mounted; passive search and attack (some active capability); low/medium frequency. Mouse Roar (MG 519); active mine detection; high frequency.

Programmes: This was the second transfer of this class, the first being to India and others have since gone to Romania, Algeria, Iran and China. It was expected that more than one would be acquired as part of an exchange deal with the USSR for Polish-built amphibious ships, but this class is considered too large for Baltic operations and subsequent transfers were of the 'Foxtrot' class.
Structure: Diving depth, 240 m *(787 ft)*. Has two torpedo tubes modified for wire guided anti-submarine torpedoes.
Operational: Based at Gdynia.

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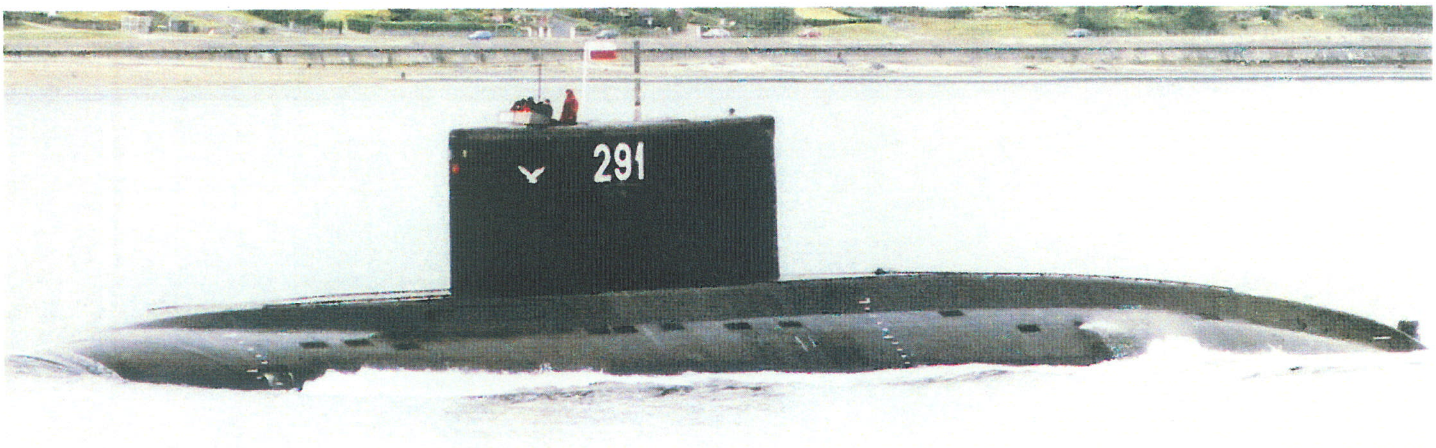

ORZEŁ ***6/2001 /*** 0126319

FRIGATES

2 OLIVER HAZARD PERRY CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
GENERAŁ KAZIMIERZ PUŁASKI (ex-*Clark*)	272 (ex-FFG 11)	Bath Iron Works	17 July 1978	24 Mar 1979	9 May 1980
GENERAŁ TADEUSZ KOŚCIUSZKO (ex-*Wadsworth*)	273 (ex-FFG 9)	Todd Shipyards, San Pedro	13 July 1977	29 July 1978	28 Feb 1980

Displacement, tons: 2,750 light; 3,638 full load
Dimensions, feet (metres): 445 × 45 × 14.8; 24.5 (sonar) *(135.6 × 13.7 × 4.5; 7.5)*
Main machinery: 2 GE LM 2500 gas turbines; 41,000 hp *(30.59 MW)* sustained; 1 shaft; cp prop
2 auxiliary retractable props; 650 hp *(484 kW)*
Speed, knots: 29. **Range, miles:** 4,500 at 20 kt
Complement: 200 (15 officers) including 19 aircrew

Missiles: SSM: 4 McDonnell Douglas Harpoon Block 1G; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: 36 GDC Standard SM-1MR; command guidance; semi-active radar homing to 46 km *(25 n miles)* at 2 Mach.
1 Mk 13 Mod 4 launcher for both SSM and SAM missiles ❶.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 Mk 75 ❷; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg.
1 General Electric/General Dynamics 20 mm/76 6-barrelled Mk 15 Vulcan Phalanx ❸; 3,000 rds/min combined to 1.5 km.
4—12.7 mm MGs.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❹. 24 Whitehead A244 Mod 3. To be replaced by Mu-90 Impact from 2002.
Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled fixed Mk 36 ❺; IR flares and chaff to 4 km *(2.2 n miles)*.
T-Mk 6 Fanfare/SLQ-25 Nixie; torpedo decoy.
ESM/ECM: SLQ-32(V)2 ❻; radar warning. Sidekick modification adds jammer and deception system.
Combat data systems: NTDS with Link 11 and 14. SATCOM SRR-1, WSC-3 (UHF).
Weapons control: SWG-1 Harpoon LCS. Mk 92 (Mod 2), WCS with CAS (Combined Antenna System). The Mk 92 is the US version of the Signaal WM28 system. Mk 13 weapon direction system. 2 Mk 24 optical directors.
Radars: Air search: Raytheon SPS-49(V)4 ❼; C/D-band.
Surface search: ISC Cardion SPS-55 ❽; I-band.
Fire control: Lockheed STIR (modified SPG-60) ❾; I/J-band.
Sperry Mk 92 (Signaal WM28) ❿; I/J-band.
Navigation: Furuno; I-band.
Tacan: URN 25. IFF Mk XII AIMS UPX-29.
Sonars: SQQ 89(V)2 (Raytheon SQS 56 and Gould SQR 19); hull-mounted active search and attack; medium frequency and passive towed array; very low frequency.

Helicopters: 2 Kaman SH-2G Seasprite ⓫.

Programmes: First one approved for transfer from US by grant in 1999. Recommissioned on 8 March 2000. Second one recommissioned on 12 June 2002.
Structure: Details given are for the ship in service with the US Navy.
Operational: Based at Gdynia. Seasprite helicopters carried from 2001.
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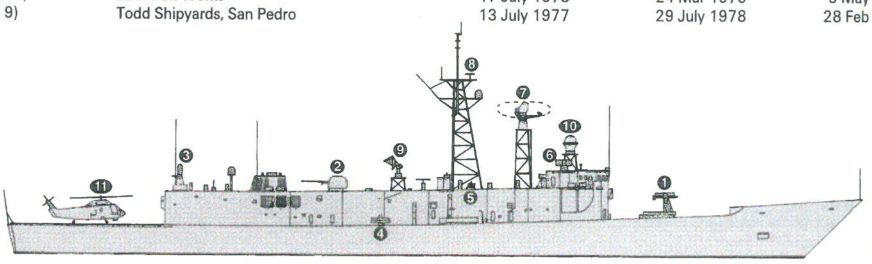
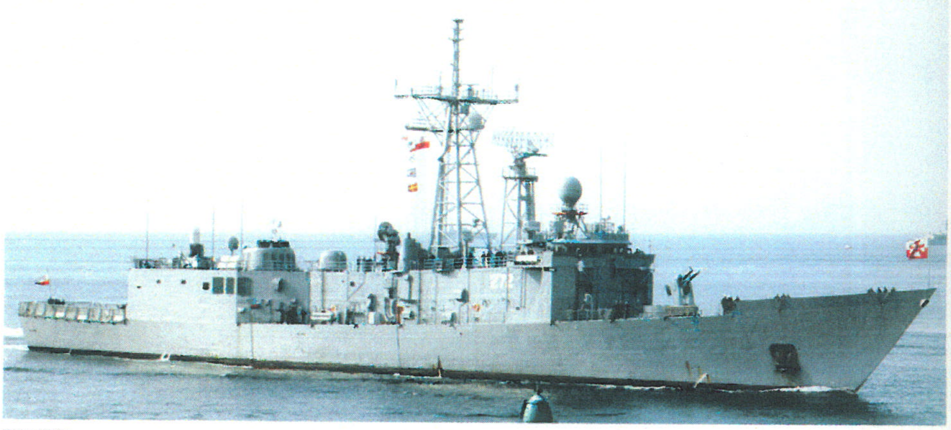
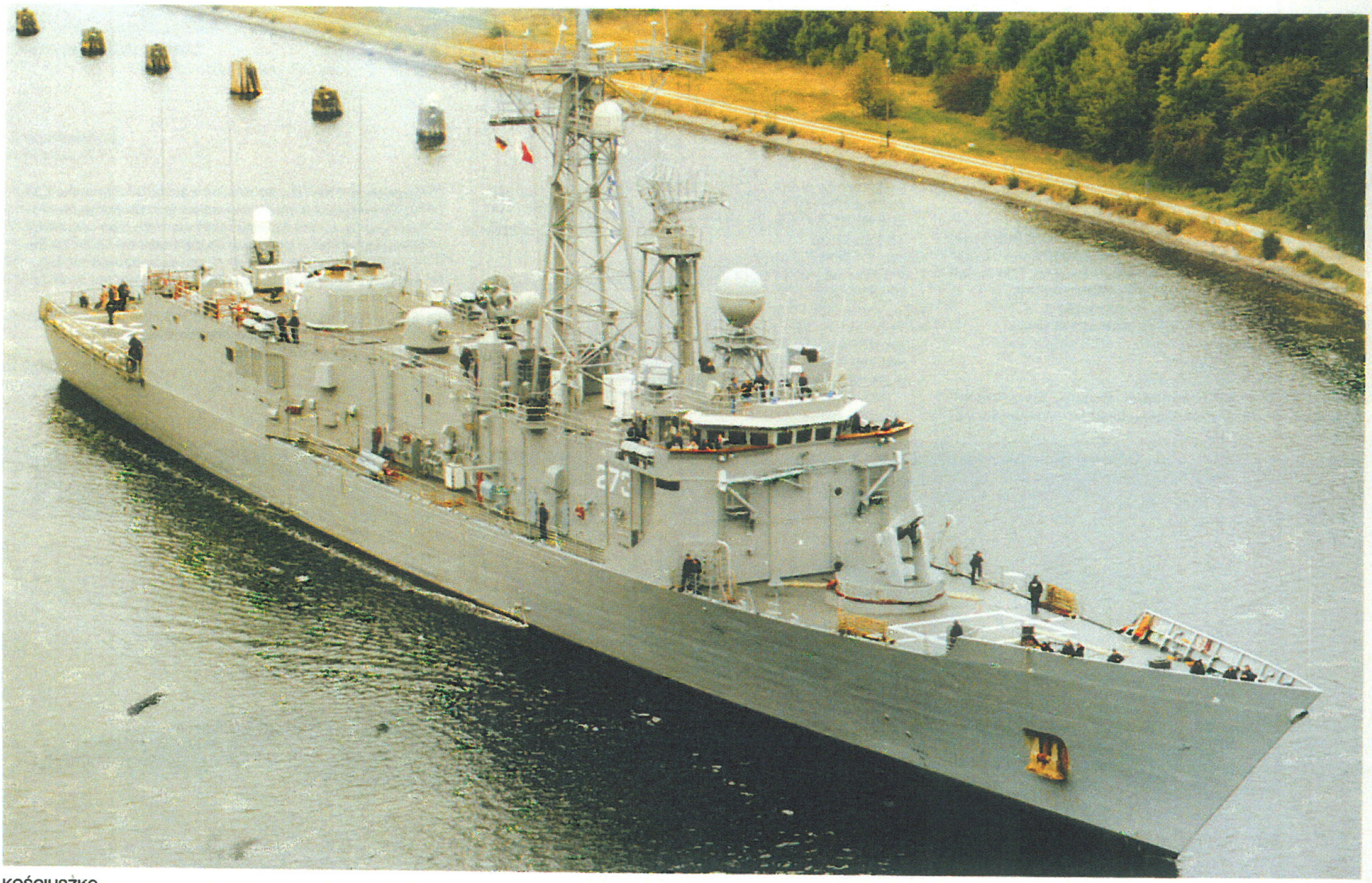


PUŁASKI
(Scale 1 : 1,200), Ian Sturton / 0105229



PUŁASKI
7/2003, H M Steele* / 0567507

KOŚCIUSZKO
6/2003, Harald Carstens* / 0567487



KOŚCIUSZKO
9/2002, Harald Carstens / 0526828

CORVETTES

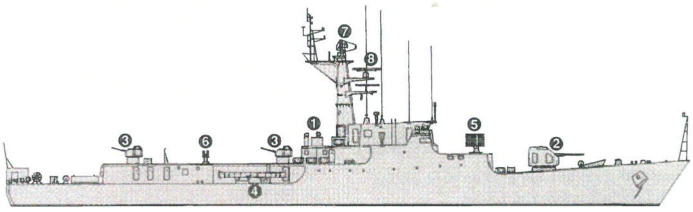
1 KASZUB CLASS (PROJECT 620) (FSM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
KASZUB	240	Northern Shipyard, Gdansk	9 June 1984	11 May 1986	3 Mar 1987

Displacement, tons: 1,051 standard; 1,183 full load
Dimensions, feet (metres): 270 × 32.8 × 10.2; 16.1 (sonar) *(82.3 × 10 × 3.1; 4.9)*
Main machinery: CODAD; 4 Cegielski-Sulzer AS 16V 25/30 diesels; 16,900 hp(m) *(12.42 MW)*; 2 shafts; cp props
Speed, knots: 27. **Range, miles:** 3,500 at 14 kt; 350 at 26 kt
Complement: 82 (10 officers)

Missiles: SAM: 2 SA-N-5 quad launchers ①; IR homing to 10 km *(5.5 n miles)* at 1.5 Mach. VLS system to replace after 23 mm gun.
Guns: 1 USSR 3 in *(76 mm)*/66 AK 176 ②; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
6 ZU-23-2M Wrobel 23 mm/87 (3 twin) ③; 400 rds/min combined to 2 km.
Torpedoes: 4—21 in *(533 mm)* (2 twin) tubes ④. SET-53M; passive homing to 15 km *(8.1 n miles)* at 29 kt; warhead 100 kg.
A/S mortars: 2 RBU 6000 12-tubed trainable ⑤; range 6,000 m; warhead 31 kg; 120 rockets.
Depth charges: 2 rails. 12 charges.
Countermeasures: Decoys: 1—10 barrelled 122 mm Jastrzab launcher ⑥ for chaff.
ESM: Intercept.
Weapons control: Drakon TFCS.
Radars: Air/surface search: Strut Curve (MR 302) ⑦; F-band.
Surface search: Racal Bridgemaster C-252 ⑧; I-band.
Navigation: Racal Bridgemaster C-341; I-band.
IFF: RAWAR SA-10M2.
Sonars: MG 322T; hull-mounted; active search; medium frequency.
MG 329M; stern-mounted dipping type mounted on the transom; active; high frequency.

Programmes: Second of class cancelled in 1989 and a class of up to ten more ships based on the Kaszub hull and specialised for anti-submarine warfare has been shelved.



KASZUB *(Scale 1 : 900), Ian Sturton* / 0081558

KASZUB *5/2003*, B Prézelin* / 0567489

Structure: Design based on 'Grisha' class but with many alterations. The 76 mm gun was fitted in late 1991. New decoy system fitted in 1999. There is space for a fire-control director on the bridge roof.

Operational: Finally achieved operational status in 1990. Based at Hel with the Border Guard in 1990 but returned to the Navy in 1991. The ship has to stop to use stern-mounted sonar.

UPDATED

KASZUB *5/2003*, B Prézelin* / 0567488

0 + 2 (5) PROJECT 621 GAWRON II (MEKO A 100) CLASS (FSGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
—	—	Naval Shipyard, Gdynia	28 Oct 2001	2004	2005
—	—	Naval Shipyard, Gdynia	2003	2005	2006

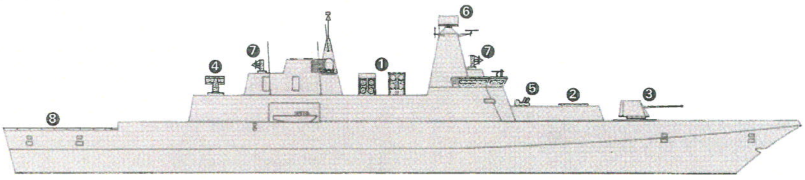
Displacement, tons: 2,035 full load
Dimensions, feet (metres): 312.3 × 43.6 × 11.8 *(95.2 × 13.13 × 3.6)*
Main machinery: CODAG; 1 gas turbine; 2 diesels; 2 shafts
Speed, knots: 30. **Range, miles:** 4,000 at 15 kt
Complement: 74

Missiles: SSM: 8 RBS-15 Mk 3 ①.
SAM: Evolved Sea Sparrow; VLS ②.
Guns: 1—3 in *(76 mm)*/62 ③. 2—35 mm. RAM ④.
A/S mortars: 2 ASW 601 ⑤.
Countermeasures: Decoys: 1—10 barrelled Jastrzab 122 mm; chaff and IR flares.
ESM: Radar warning.
TCM: C310 torpedo decoy system.
Combat data systems: Signaal TACTICOS or Saab Tech 9LV.
Radars: Air/surface search ⑥; fire control ⑦; navigation.
Sonars: Hull mounted; active; medium frequency.

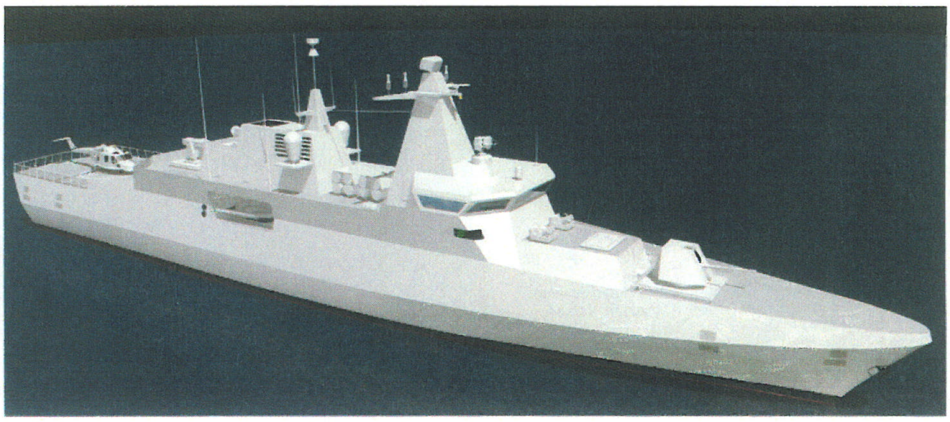
Helicopters: Platform for 1 medium ⑧.

Programmes: Design definition by German Corvette Consortium (Blohm + Voss, Lürssen, Thyssen and HDW) which is to act as subcontractor to the shipbuilder. There are options for a further five vessels. Details of the design and of the building programme have not been confirmed and although it is planned that both ships enter service by 2006, funding problems may cause delays.
Structure: The design is based on the MEKO A 100.

UPDATED



PROJECT 621 *(Scale 1 : 900), Ian Sturton* / 0526837



PROJECT 621
2001, Polish Navy / 0114788

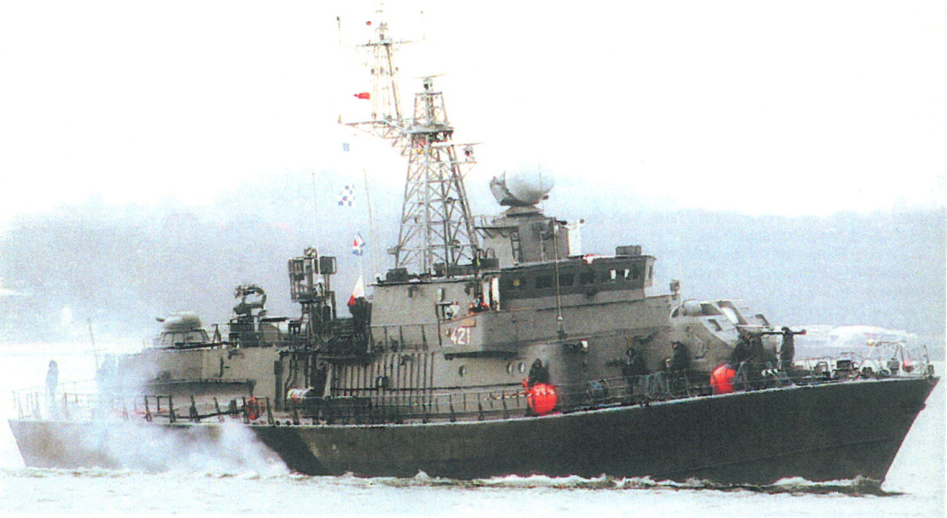
3 ORKAN (SASSNITZ) CLASS (PROJECT 660 (ex-151)) (FSGM)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ORKAN	421	Peenewerft/Northern Shipyard, Gdansk	29 Sep 1990	18 Sep 1992
PIORUN	422	Peenewerft/Northern Shipyard, Gdansk	19 Oct 1990	11 Mar 1994
GROM (ex-*Huragan*)	423	Peenewerft/Northern Shipyard, Gdansk	11 Dec 1990	28 Mar 1995

Displacement, tons: 331 standard; 326 full load
Dimensions, feet (metres): 163.4 oa; 147.6 wl × 28.5 × 7.2 *(49.8; 45 × 8.7 × 2.2)*
Main machinery: 3 Type M 520T diesels; 16,000 hp(m) *(11.93 MW)* sustained; 3 shafts
Speed, knots: 38. **Range, miles:** 1,600 at 14 kt
Complement: 36 (4 officers)

Missiles: SSM: 8 (2 quad) launchers; RBS-15 Mk 3 missiles being fitted from 2000.
SAM: SA-N-5 Grail quad launcher; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; warhead 1.5 kg.
Guns: 1 USSR 3 in *(76 mm)*/66 AK 176; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
1—30 mm/65 AK 630; 6 barrels; 3,000 rds/min combined to 2 km.
Countermeasures: Decoys: 8—9 barrelled Jastrzab 81 mm and 1—10 barrelled Jastrzab 122 mm chaff and IR launchers.
Combat data systems: Signaal TACTICOS (see *Modernisation*).
Radars: Surface search: NUR-27XA; I-band.
Fire control: Bass Tilt MR-123; H/I-band.
Navigation: SRN 443XTA; I-band.
IFF: Square Head; Salt Pot.

Programmes: Originally six of this former GDR 'Sassnitz' class were to be built at Peenewerft for Poland. Three units were acquired and completed at Gdansk.
Modernisation: Contract with Thales Naval Nederland (TNNL) as prime contractor for upgrade of all three ships signed 29 June 2001. New equipment includes RBS 15 Mk 2 SSM (to be replaced with Mk 3 from 2004), TACTICOS combat data system, STING optronic director, Sea Giraffe surveillance radar, PIT navigational radar and ESM equipment, improved communications and Link 11. Refit of *Piorun* was to have completed by 2003, to be followed by the other two ships.

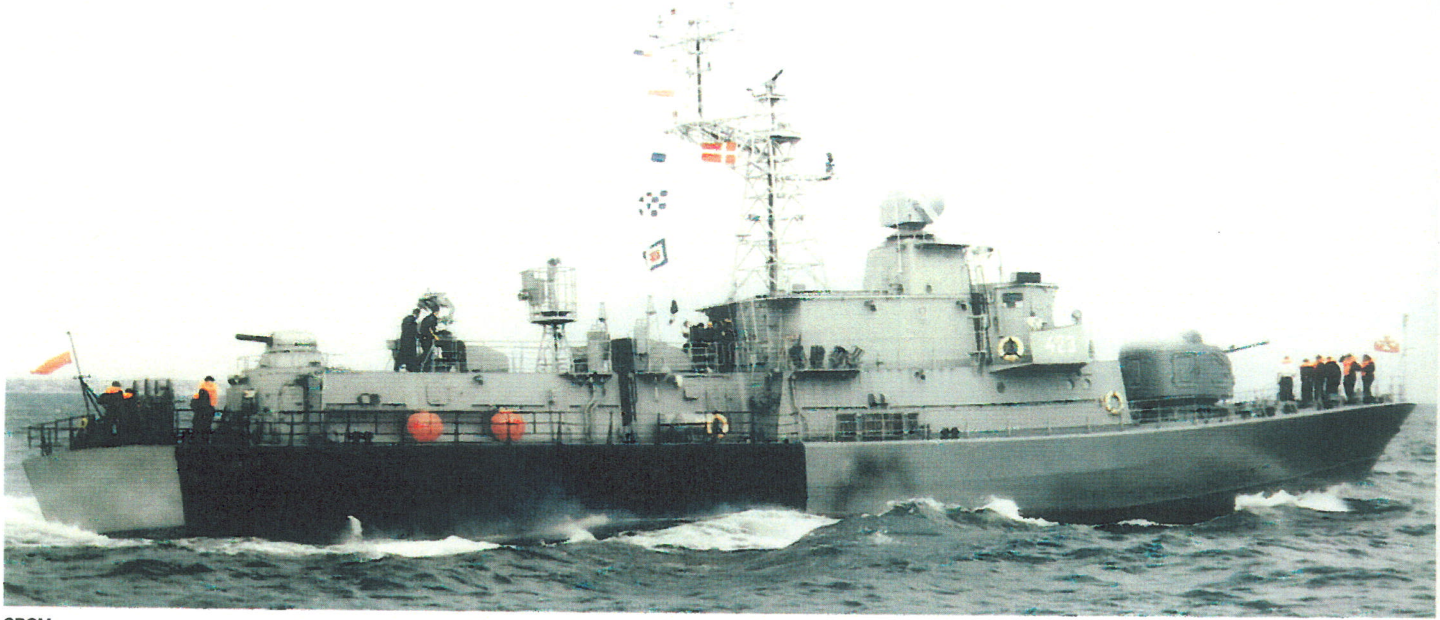


ORKAN

2/2002, Frank Findler / 0533232

Structure: The prototype vessel had two quadruple SSM launchers with an Exocet type (SS-N-25) of missile and the plan is to fit eight SSM in due course. Plank Shave radar has been replaced by a Polish set. Unlike the German Coast Guard vessels of the same class, these ships have retained three engines.
Operational: Based at Gdynia.

UPDATED



GROM

6/1999, L-G Nilsson / 0081563

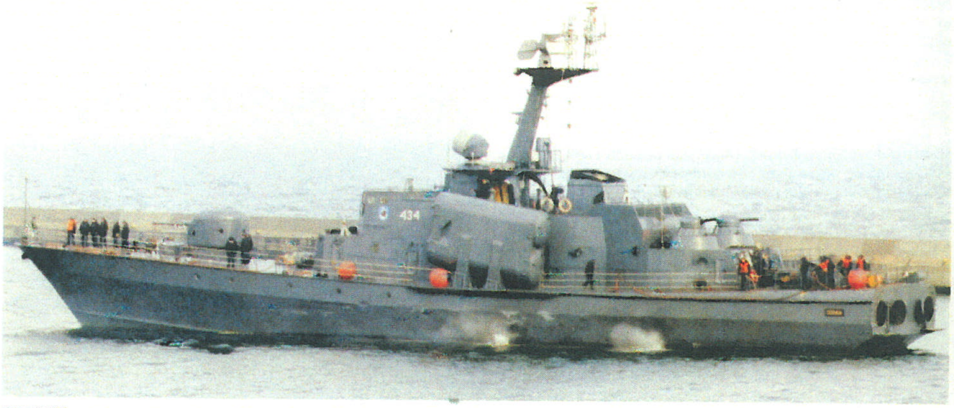
4 GORNIK (TARANTUL I) CLASS (PROJECT 1241RE) (FSGM)

Name	*No*	*Builders*	*Commissioned*
GORNIK	434	River Shipyard 341, Rybinsk	28 Dec 1983
HUTNIK	435	River Shipyard 341, Rybinsk	31 Mar 1984
METALOWIEC	436	River Shipyard 341, Rybinsk	13 Feb 1988
ROLNIK	437	River Shipyard 341, Rybinsk	4 Feb 1989

Displacement, tons: 385 standard; 455 full load
Dimensions, feet (metres): 184.1 × 37.7 × 8.2 *(56.1 × 11.5 × 2.5)*
Main machinery: COGAG; 2 Type M 70 gas turbines; 24,000 hp(m) *(17.65 MW)* sustained; 2 M 75 gas turbines with reversible gearbox; 8,000 hp(m) *(5.88 MW)* sustained; 2 shafts
Speed, knots: 42. **Range, miles:** 1,650 at 14 kt
Complement: 45 (6 officers)

Missiles: SSM: 4 SS-N-2C Styx (2 twin) launchers; active radar or IR homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg; sea-skimmer in terminal flight.
SAM: SA-N-5 Grail quad launcher; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; warhead 1.5 kg.
Guns: 1—3 in *(76 mm)*/60 AK 176; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
2—30 mm/65 AK 630 6-barrelled type; 3,000 rds/min combined to 2 km.
Countermeasures: Decoys: 2 PK 16 chaff launchers.
Weapons control: Korall-E WFCS; PMK 453 optronic director.
Radars: Air/surface search: Plank Shave (Garpun E); E-band.
Navigation: Racal Decca Bridgemaster; I-band.
Fire control: Bass Tilt (MR-123); H/I-band.
IFF: Square Head.
Sonars: Foal Tail; VDS; active; high frequency.

Programmes: Transferred from the USSR.



GORNIK

10/2002, J Ciślak* / 0567490

Modernisation: An upgrade of these ships is expected when the 'Orkan' modernisation programme is completed. Completion is expected by 2006.
Structure: Similar to others of the class exported to India, Yemen, Romania and Vietnam.
Operational: Based at Gdynia.

UPDATED

SHIPBORNE AIRCRAFT

Numbers/Type: 4 Kaman SH-2G Seasprite.
Operational speed: 130 kt *(241 km/h).*
Service ceiling: 22,500 ft *(6,860 m).*
Range: 367 n miles *(697 km).*
Role/Weapon systems: First two delivered in 2002. Second pair in January 2003. Sensors: LN66/HP radar; ALR-66 ESM, ALE-39 ECM, AQS-81(V)2 MAD, AAQ-16 FLIR, ARR 57/84 sonobuoy receivers. Weapons: ASW: two A244S torpedoes (Mu 90 from 2002). ASV: one 7.62 mm MG.
UPDATED

NAVY 163546

SH-2G *10/2002*, J Ciślak* / 0567491

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: In addition there are 6 TS training aircraft.

Numbers/Type: 7/3 MiG 21 Fishbed/MiG 21 UM.
Operational speed: 701 kt (low level) *(1,300 km/h).*
Service ceiling: 59,400 ft *(18,000 m).*
Range: MiG-21: 1,025 n miles *(1,900 km).* MiG-21UM: 701 n miles *(1,300 km).*
Role/Weapon systems: Sensors: RP-22 Saphir radar. Weapons: AAM; R-3R ARM, R13, R60 IR homing. ASV; 96-S5 rockets, 4-S 24 rockets, conventional bombs. All aircraft are expected to be deleted by the end of 2003.
UPDATED

MiG 21 *6/2002*, J Ciślak* / 0567492

Numbers/Type: 8/2/3 PZL Mielec M-28/M-28E/M-28TD Bryza 1R.
Operational speed: 181 kt *(335 km/h).*
Service ceiling: 13,770 ft *(4,200 m).*
Range: 736 n miles *(1,365 km).*
Role/Weapon systems: Based on the USSR Cash light transport and used for maritime patrol and SAR. First one delivered in January 1995. Sensors: Search radar ARS 400; ESM. Weapons: 2 SAB 100 bombs.
UPDATED

M-28 *6/2003*, J Ciślak* / 0567493

Numbers/Type: 3 PZL Mielec TS-11R Iskra.
Operational speed: 388 kt *(718 km/h).*
Service ceiling: 36,560 ft *(11,140 m).*
Range: 626 n miles *(1,160 km).*
Role/Weapon systems: Two-seater jet trainer with secondary reconnaissance role.
NEW ENTRY

TS-11R *6/2002*, J Ciślak* / 0567497

Numbers/Type: 10/3 Mil Mi-14PL Haze A/Mil Mi-14PS Haze C.
Operational speed: 120 kt *(222 km/h).*
Service ceiling: 16,000 ft *(4,670 m).*
Range: 500 n miles *(1,100 km).*
Role/Weapon systems: PL for ASW, PS for SAR. PL operates in co-operation with surface units. Adapted for landing and taking off from water. Sensors: I-2ME search radar; APM-60, MAD, sonobuoys, MGM 329M VDS. Weapons: ASW; Whitehead A 244 torpedoes, depth bombs and mines. Arming with Penguin ASM is also under consideration.
UPDATED

Mi-14PL *6/2002*, J Ciślak* / 0567494

Numbers/Type: 2/7 PZL Świdnik W-3 Sokol/PZL Świdnik W-3RM Anakonda.
Operational speed: 119 kt *(220 km/h).*
Service ceiling: 19,672 ft *(6,000 m).*
Range: 335 n miles *(620 km).*
Role/Weapon systems: W-3 for transport, W-3RM for SAR. Operates in co-operation with surface units. Adapted for landing and taking off from water. Sensors: RDS-82 VP Meteo, FLIR.
UPDATED

0906
RESCUE
MARYNARKA WOJENNA RP

W-3RM *6/2002*, J Ciślak* / 0567495

Numbers/Type: 3/1 Mi-2RM/Mi-2D Hoplite.
Operational speed: 100 *(180 km/h).*
Service ceiling: 13,200 ft *(4,000 m).*
Range: 300 n miles *(550 km).*
Role/Weapon systems: Mi-2D is for transport aircraft and Mi-2RM is for SAR.
VERIFIED

Mi-2RM *7/2000, J Ciślak* / 0105237

Numbers/Type: 2 Mi-17 Hip.
Operational speed: 124 kt *(230 km/h).*
Service ceiling: 16,400 ft *(5,000 m).*
Range: 324 n miles *(600 km).*
Role/Weapon systems: Transport aircraft. First one delivered in 2001.
UPDATED

MARYNARKA WOJENNA RP

Mi-17 *6/2003*, J Ciślak* / 0567496

PATROL FORCES

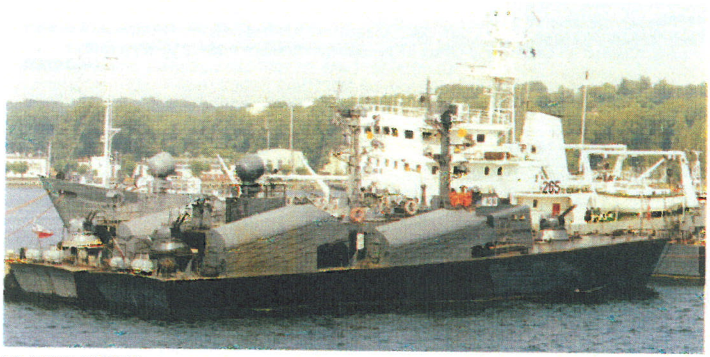
3 PUCK (OSA I) CLASS (PROJECT 205)
(FAST ATTACK CRAFT—MISSILE) (PTFGM)

Name	*No*	*Builders*	*Commissioned*
ŚWINOUJŚCIE	431	Leningrad	13 Jan 1973
DZIWNÓW	432	Leningrad	27 Jan 1975
WŁADYSŁAWOWO	433	Leningrad	13 Nov 1975

Displacement, tons: 171 standard; 210 full load
Dimensions, feet (metres): 126.6 × 24.9 × 8.8 *(38.6 × 7.6 × 2.7)*
Main machinery: 3 Type M 503A diesels; 8,025 hp(m) *(5.9 MW)* sustained; 3 shafts
Speed, knots: 35. **Range, miles:** 800 at 30 kt
Complement: 30

Missiles: SSM: 4 SS-N-2A Styx; active radar or IR homing to 46 km *(25 n miles)* at 0.9 Mach; warhead 513 kg.
SAM: SA-N-5 quad launcher.
Guns: 4—30 mm/65 (2 twin) AK 230 automatic; 1,000 rds/min to 6.5 km *(3.5 n miles)*; weight of shell 0.54 kg.
Radars: Surface search: Square Tie; I-band.
Fire control: Drum Tilt (MR-104); H/I-band.
Navigation: SRN 207M; I-band.

Modernisation: Retained as training vessels.
Structure: Pennant numbers are carried on sideboards on the bridge.
Operational: Based at Gdynia. ***UPDATED***



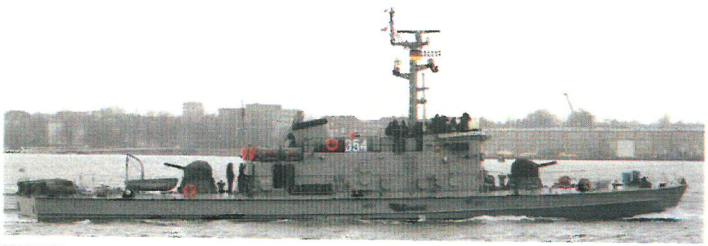
WŁADYSŁAWOWO *6/2003*, J Ciślak* / 0567498

6 MODIFIED OBLUZE CLASS (PROJECT 912M)
(LARGE PATROL CRAFT) (PC)

Name	*No*	*Builders*	*Commissioned*
GROZNY	351	Naval Shipyard, Gdynia	8 Feb 1970
WYTRWALY	352	Naval Shipyard, Gdynia	8 Feb 1970
ZRECZNY	353	Naval Shipyard, Gdynia	30 Dec 1970
ZWINNY	354	Naval Shipyard, Gdynia	30 Dec 1970
ZAWZIETY	356	Naval Shipyard, Gdynia	10 Oct 1971
CZUJNY	358	Naval Shipyard, Gdynia	14 Sep 1972

Displacement, tons: 237 full load
Dimensions, feet (metres): 135.5 × 20.7 × 6.6 *(41.3 × 6.3 × 2)*
Main machinery: 2 Type 40-D diesels; 4,400 hp(m) *(3.23 MW)* sustained; 2 shafts
Speed, knots: 24. **Range, miles:** 410 at 23 kt; 1,200 at 16 kt
Complement: 32 (4 officers)
Guns: 4—30 mm/65 AK 230 (2 twin) automatic; 1,000 rds/min to 6.5 km *(3.5 n miles)*; weight of shell 0.54 kg.
Depth charges: 2 rails. 12 charges.
Radars: Surface search: TRN 823; I-band.
IFF: Two Square Head. High Pole.
Sonars: Tamir II (MG 11); hull-mounted; active attack; high frequency.

Comment: All based at Hel. Drum Tilt radar has been removed. ***VERIFIED***



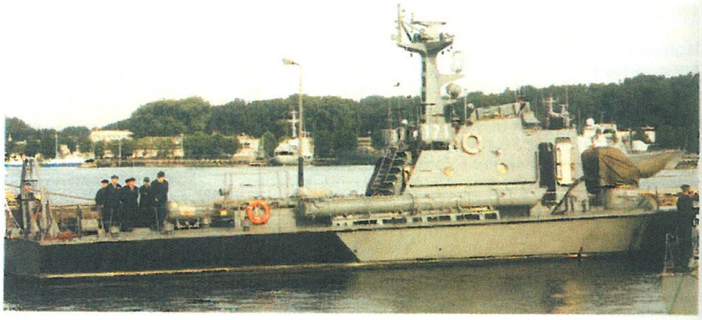
ZWINNY *3/2002, Frank Findler* / 0533233

11 PILICA CLASS (PROJECT 918M)
(COASTAL PATROL CRAFT) (PB)

KP 166-176 166-176

Displacement, tons: 93 full load
Dimensions, feet (metres): 93.8 × 19 × 4.6 *(28.6 × 5.8 × 1.4)*
Main machinery: 3 M 50-F7 diesels; 3,604 hp(m) *(2.65 MW)*; 3 shafts
Speed, knots: 27. **Range, miles:** 1,160 at 12 kt
Complement: 14 (1 officer)
Guns: 2 ZU-23-2M 23 mm/87 (twin); 400 rds/min to 2 km.
Torpedoes: 2—21 in *(533 mm)* tubes; SET 53M; active/passive homing to 14 km *(7.6 n miles)* at 29 kt; warhead 90 kg.
Radars: Surface search: SRN 301; I-band.
Sonars: MG 329M; dipping VDS.

Comment: Built at Naval Shipyard, Gdynia. First one commissioned 23 April 1977 and the last 24 February 1983. Based at Kolobrzeg. First batch of five, without torpedo tubes are part of the Maritime Frontier Guard. Guns replaced 1986-90. ***VERIFIED***



KP 171 *6/1999, J Cislak* / 0081567

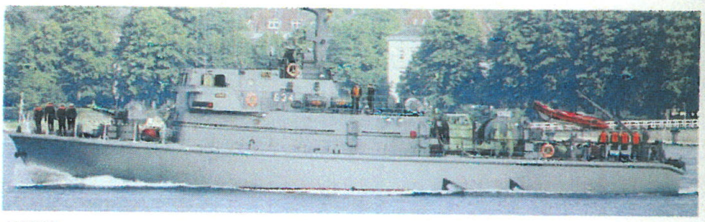
MINE WARFARE FORCES

13 GOPLO (NOTEC) CLASS (PROJECT 207P/207DM)
(MINESWEEPERS/HUNTERS—COASTAL) (MHC)

Name	*No*	*Builders*	*Launched*	*Commissioned*
GOPLO	630	Naval Shipyard, Gdynia	16 Apr 1981	13 Mar 1982
GARDNO	631	Naval Shipyard, Gdynia	23 June 1993	31 Mar 1984
BUKOWO	632	Naval Shipyard, Gdynia	19 Sep 1984	23 June 1985
DABIE	633	Naval Shipyard, Gdynia	12 June 1985	11 May 1986
JAMNO	634	Naval Shipyard, Gdynia	11 Feb 1986	11 Oct 1986
MIELNO	635	Naval Shipyard, Gdynia	27 June 1986	9 May 1987
WICKO	636	Naval Shipyard, Gdynia	20 Mar 1987	12 Oct 1987
RESKO	637	Naval Shipyard, Gdynia	1 Oct 1987	26 Mar 1988
SARBSKO	638	Naval Shipyard, Gdynia	10 May 1988	12 Oct 1988
NECKO	639	Naval Shipyard, Gdynia	21 Nov 1988	9 May 1989
NAKLO	640	Naval Shipyard, Gdynia	29 May 1989	2 Mar 1990
DRUZNO	641	Naval Shipyard, Gdynia	29 Nov 1989	17 Sep 1990
HANCZA	642	Naval Shipyard, Gdynia	9 July 1990	1 Mar 1991

Displacement, tons: 216 full load
Dimensions, feet (metres): 126.3 × 24.3 × 5.9 *(38.5 × 7.4 × 1.8)*
Main machinery: 2 M 401A1 diesels; 1,874 hp(m) *(1.38 MW)* sustained; 2 shafts
Speed, knots: 14. **Range, miles:** 1,100 at 9 kt
Complement: 29 (6 officers)
Guns: 2 ZU-23-2MR 23 mm (twin); 400 rds/min combined to 2 km.
Depth charges: 24
Mines: 6-24
Countermeasures: MCM: MMTK1 mechanical; MTA 1 acoustic and TEM-PE 1 magnetic sweeps.
Radars: Navigation: Bridgemaster; I-band.
Sonars: MG 89 or MG 79; active minehunting; high frequency.

Comment: *Goplo* is an experimental prototype numbered 207D. The 23 mm guns have replaced the original 25 mm. GRP hulls. All are to be upgraded to 207DM for minehunting, and to carry divers. Named after lakes and based at Swinoujscie. ***VERIFIED***



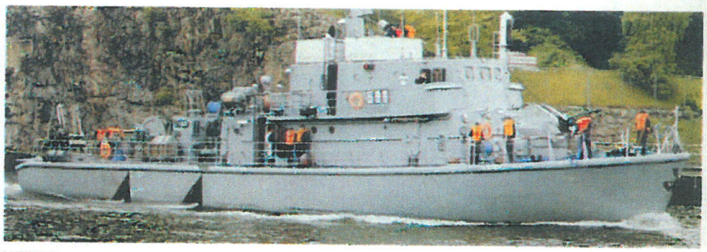
JAMNO *6/2001, Per Körnefeldt* / 0114793

4 MAMRY (NOTEC II) CLASS (PROJECT 207M)
(MINESWEEPERS/HUNTERS—COASTAL) (MHSCM)

Name	*No*	*Builders*	*Launched*	*Commissioned*
MAMRY	643	Naval Shipyard, Gdynia	30 Sep 1991	25 Sep 1992
WIGRY	644	Naval Shipyard, Gdynia	28 Nov 1992	14 May 1993
SNIARDWY	645	Naval Shipyard, Gdynia	18 June 1993	28 Jan 1994
WDZYDZE	646	Naval Shipyard, Gdynia	24 June 1994	2 Dec 1994

Displacement, tons: 216 full load
Dimensions, feet (metres): 126.3 × 24.3 × 5.9 *(38.5 × 7.4 × 1.8)*
Main machinery: 2 M 401A diesels; 1,874 hp(m) *(1.38 MW)*; 2 shafts
2 auxiliary motors; 816 hp(m) *(60 kW)*
Speed, knots: 14. **Range, miles:** 865 at 14 kt
Complement: 27 (5 officers)
Missiles: SAM/Guns: 2 ZU-23-2MR 23 mm Wrobel II (twin); combination of 2 SA-N-5 missiles; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; warhead 1.5 kg and guns; 400 rds/min combined to 2 km.
Mines: 6-24 depending on type.
Countermeasures: MCM: MMTK 1m mechanical, MTA 2 acoustic and TEM-PE 1m magnetic sweeps.
Radars: Navigation: SRN 401XTA; I-band.
Sonars: SHL 100/200; hull mounted/VDS; active minehunting; high frequency.

Comment: Modified version of the 207P and equipped to carry divers. Identical hull to the 207P. All based at Hel. An enlarged design, the Type 207 MCMV with a length of 43.5 m, is a longer term project. ***VERIFIED***



WIGRY *6/2000, Curt Borgenstam* / 010524

0 + (14) KORMORAN CLASS (PROJECT 257) (MINEHUNTERS—COASTAL MHC)

Displacement, tons: 400 full load
Dimensions, feet (metres): 142.7 × 23.0 × 11.5 *(43.5 × 7.0 × 3.85)*
Main machinery: 2 diesels; 3,700 hp(m) *(2.76 MW)*; 2 shafts. 1 motor; 80 hp (minehunting)
Complement: 36
Missiles: twin 23 mm mount and SA-N-5 (Grail) SAM system.
Sonars: SHL-101/T; hull-mounted.

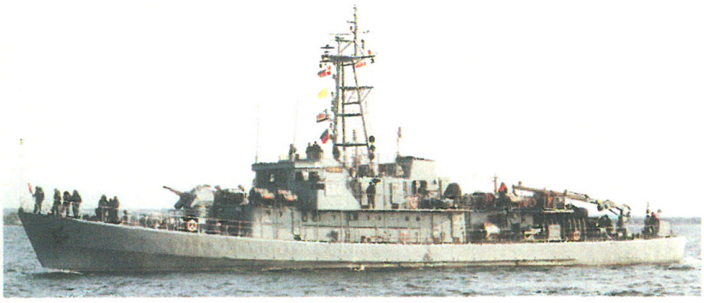
Comment: Details are speculative. Two batches of six and eight vessels are envisaged although the construction programme has not been announced. All to be built in a Polish shipyard in conjunction with a foreign partner. The minehunting sonar is under development by Centrum Techniki Morskiej (CTM) and is based on technology from the Thales Underwater Systems TSM 2022 Mk III. ***UPDATED***

3 KROGULEC CLASS (PROJECT 206FM) (MHCM)

Name	*No*	*Builders*	*Commissioned*
FLAMING	621	Gdynia Shipyard	3 Nov 1966
MEWA	623	Gdynia Shipyard	25 May 1967
CZAJKA	624	Gdynia Shipyard	17 June 1967

Displacement, tons: 550 full load
Dimensions, feet (metres): 190.9 × 25.3 × 6.9 *(58.2 × 7.7 × 2.1)*
Main machinery: 2 Sulzer/Cegielski 6AL 25/30 diesels; 2,203 hp(m) *(1.62 MW)*; 2 shafts; LIPS cp props
Speed, knots: 17. **Range, miles:** 2,000 at 12 kt
Complement: 52 (6 officers)
Missiles: SAM: 2 Fasta-4M quad launchers. SA-N-5.
2 SA-N-10 (Grom) to be fitted in due course.
Guns: SAM/guns: 2 Wrobel ZU-23-2MR 23 mm (twin) with 2 SA-N-5 missiles.
Depth charges: 2 racks.
Mines: 6—12 depending on type.
Countermeasures: Decoys: 6—9 barrelled Jastrzab 2 launchers for chaff.
ECM: PIT Bren system being fitted.
MCM: 2 Bofors MT2W mechanical, 1 TEM-PE-2MA magnetic and 1 MTA-2 acoustic sweeps. CTM Ukwial ROV with sonar, TV and charges. 10 ZHH 230 sonobuoys.
Combat data systems: CTM Pstrokosz command support system.
Radars: Navigation: Racal Decca Bridgemaster; I-band.
IFF: RAWAR SC-10D2
Sonars: CTM SHL-100MA hull mounted; active minehunting; high frequency; Politechnica Gdansk SHL-200 VDS.

Comment: All taken out of service in 1997. New armament and minehunting equipment installed. Divers recompression chamber carried. *Mewa* returned to service in May 1999, *Czajka* in May 2000 and *Flaming* in 2001. Life extended by ten years. ***UPDATED***



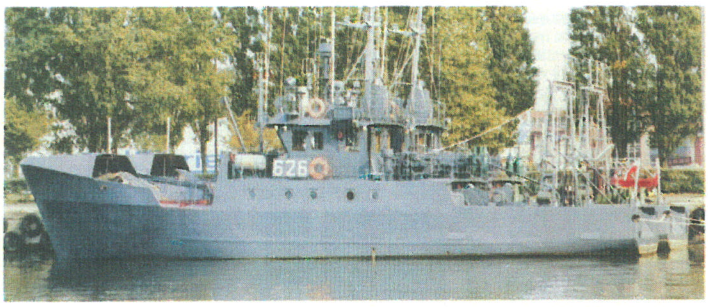
CZAJKA *4/2003**, ***Martin Mokrus*** / 0567499

2 LENIWKA CLASS (PROJECT 410S) (MINESWEEPERS—COASTAL) (MSC)

Name	*No*	*Builders*	*Commissioned*
TR 25	625	Ustka Shipyard	12 Oct 1983
TR 26	626	Ustka Shipyard	12 Oct 1983

Displacement, tons: 269 full load
Dimensions, feet (metres): 84.6 × 23.6 × 8.9 *(25.8 × 7.2 × 2.7)*
Main machinery: 1 Puck-Sulzer 6AL20/24 diesel; 570 hp(m) *(420 kW)*; 1 shaft; cp prop
Speed, knots: 11. **Range, miles:** 3,200 at 10 kt
Complement: 16
Countermeasures: MCM: MT-3U mechanical, TEM-PE-3 (TR-25) magnetic and BAT 2 acoustic sweeps.
Radars: Navigation: SRN 311; I-band.

Comment: Project 410S modified stern trawlers. Sweeping is done by using strung-out charges. The ships can carry 40 tons of cargo or 40 people. Based at Swinoujscie. ***UPDATED***



TR 26 *9/2003**, ***J Ciślak*** / 0567500

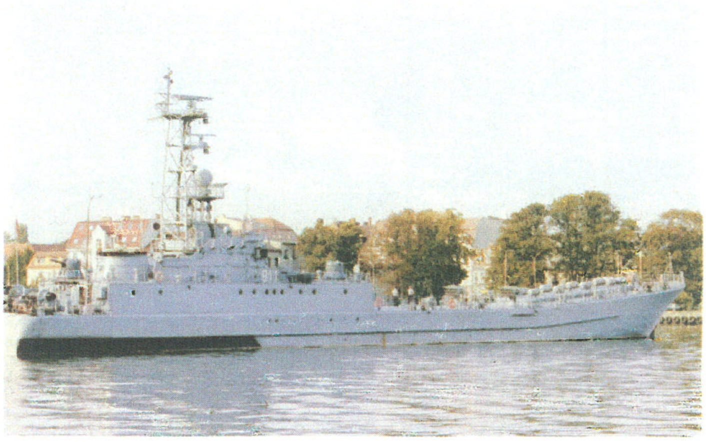
AMPHIBIOUS FORCES

1 MODIFIED POLNOCHNY C CLASS (PROJECT 776) (LST)

Name	*No*	*Builders*	*Commissioned*
GRUNWALD	811	Northern Shipyard, Gdansk	28 Apr 1973

Displacement, tons: 1,253 full load
Dimensions, feet (metres): 266.7 × 31.8 × 7.9 *(81.3 × 9.7 × 2.4)*
Main machinery: 2 Type 40-D diesels; 4,400 hp(m) *(3.2 MW)* sustained; 2 shafts
Speed, knots: 18. **Range, miles:** 1,000 at 18 kt; 2,600 at 12 kt
Complement: 45 plus 54 flag staff
Military lift: 2 light trucks
Missiles: SAM: 2 Fasta 4M quad launchers for SA-N-5.
Guns: 4—30 mm (2 twin). 2—140 mm rocket launchers.
Radars: Navigation: SRN 7453 Nogat; I-band.
Fire control: Drum Tilt (MR-104); H/I-band.

Comment: *Grunwald* converted to an amphibious command vessel. Command and electronic equipment fitted on the vehicle deck leaving a small area behind the bow doors for two light trucks or jeeps. Based at Swinoujscie. ***UPDATED***



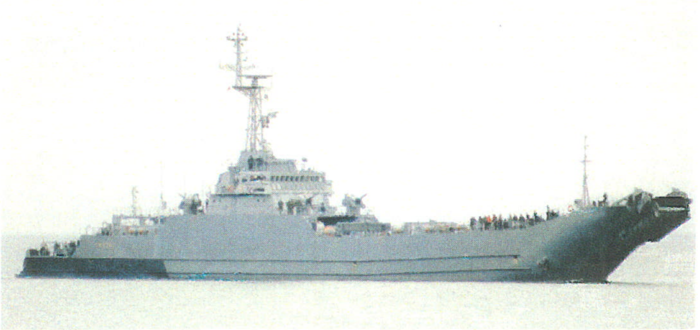
GRUNWALD *9/2003**, ***J Ciślak*** / 0567501

5 LUBLIN CLASS (PROJECT 767) (LST/MINELAYER) (LST/ML)

Name	*No*	*Builders*	*Launched*	*Commissioned*
LUBLIN	821	Northern Shipyard, Gdansk	12 July 1988	12 Oct 1989
GNIEZNO	822	Northern Shipyard, Gdansk	7 Dec 1988	23 Feb 1990
KRAKOW	823	Northern Shipyard, Gdansk	7 Mar 1989	27 June 1990
POZNAN	824	Northern Shipyard, Gdansk	5 Jan 1990	8 Mar 1991
TORUN	825	Northern Shipyard, Gdansk	8 June 1990	24 May 1991

Displacement, tons: 1,350 standard; 1,745 full load
Dimensions, feet (metres): 313 × 35.4 × 6.6 *(95.4 × 10.8 × 2)*
Main machinery: 3 Cegielski 6ATL25D diesels; 5,390 hp(m) *(3.96 MW)* sustained; 3 shafts
Speed, knots: 16. **Range, miles:** 1,400 at 16 kt
Complement: 50 (5 officers)
Military lift: 9 Type T-72 tanks or 9 APC or 17 medium or light trucks. 80 troops plus equipment (821-823); 125 troops plus equipment (824); 135 troops and equipment (825).
Missiles: SAM/Guns: 8 ZU-23-2MR 23 mm Wrobel II (4 twin); combination of 2 SA-N-5 missiles; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; warhead 1.5 kg and guns; 400 rds/min combined.
Depth charges: 9 throwers for counter-mining.
Mines: 50-134.
Countermeasures: Decoys: 2 12-barrelled 70 mm Derkacz chaff launchers (821 and 825).
2 12-barrelled Jastrzab chaff launchers (822-824).
Radars: Navigation: SRN 7453 and SRN 443XTA; I-band.

Comment: Designed with a through deck from bow to stern and can be used as minelayers as well as for amphibious landings. Folding bow and stern ramps and a stern anchor are fitted. The ship has a pressurised citadel for NBC defence and an upper deck washdown system. Mining capabilities upgraded in 1997/98. Based at Swinoujscie. ***UPDATED***



GNIEZNO *6/2003**, ***J Ciślak*** / 0567502

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit jfs.janes.com

3 DEBA CLASS (PROJECT 716) (LCU)

Name	*No*	*Builders*	*Launched*	*Commissioned*
KD 11	851	Naval Shipyard, Gdynia	13 Nov 1987	7 Aug 1988
KD 12	852	Naval Shipyard, Gdynia	2 July 1990	2 Jan 1991
KD 13	853	Naval Shipyard, Gdynia	26 Oct 1990	3 May 1991

Displacement, tons: 176 full load
Dimensions, feet (metres): 122 × 23.3 × 5.6 *(37.2 × 7.1 × 1.7)*
Main machinery: 3 Type M 401A diesels; 3,000 hp(m) *(2.2 MW)*; 3 shafts
Speed, knots: 20. **Range, miles:** 430 at 16 kt
Complement: 12
Military lift: 1 tank or 2 vehicles up to 20 tons and 50 troops
Guns: 2 ZU-23-2M 23 mm (twin).
Radars: Surface search: SRN 207A; I-band.

Comment: The plan was to build 12 but the programme was suspended at three through lack of funds. A similar design has been assembled in Iran. Can carry up to six launchers for strung-out charges. Based at Swinoujscie.

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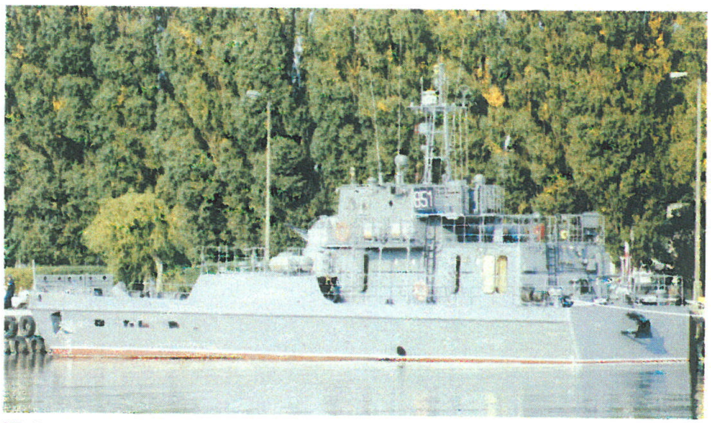

KD 11 — *9/2003*, J Ciślak* / 0567514

SURVEY AND RESEARCH SHIPS

2 MODIFIED FINIK 2 CLASS (PROJECT 874) (AGS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
HEWELIUSZ	265	Northern Shipyard, Gdansk	11 Sep 1981	27 Nov 1982
ARCTOWSKI	266	Northern Shipyard, Gdansk	20 Nov 1981	27 Nov 1982

Displacement, tons: 1,135 standard; 1,218 full load
Dimensions, feet (metres): 202.1 × 36.7 × 10.8 *(61.6 × 11.2 × 3.3)*
Main machinery: 2 Cegielski-Sulzer 6AL25/30 diesels; 1,920 hp(m) *(1.4 MW)*; 2 auxiliary motors; 204 hp(m) *(150 kW)*; 2 shafts; cp props; bow thruster
Speed, knots: 13. **Range, miles:** 5,900 at 11 kt
Complement: 49 (10 officers)
Radars: Navigation: SRN 7453 Nogat; SRN 743X; I-band.

Comment: Sister ships to Russian class which were built in Poland, except that *Heweliusz* and *Arctowski* have been modified and have no buoy handling equipment. Equipment includes Atlas Deso, Atlas Ralog and Atlas Dolog survey. Both ships are based at Gdynia. One sister ship, *Planeta*, is civilian operated and the other, *Zodiak*, was decommissioned in 2003.

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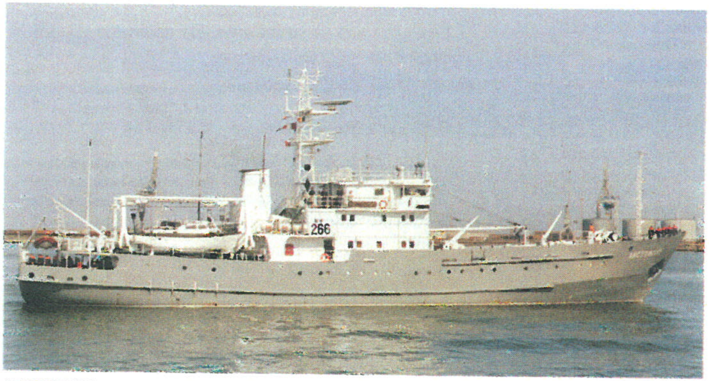
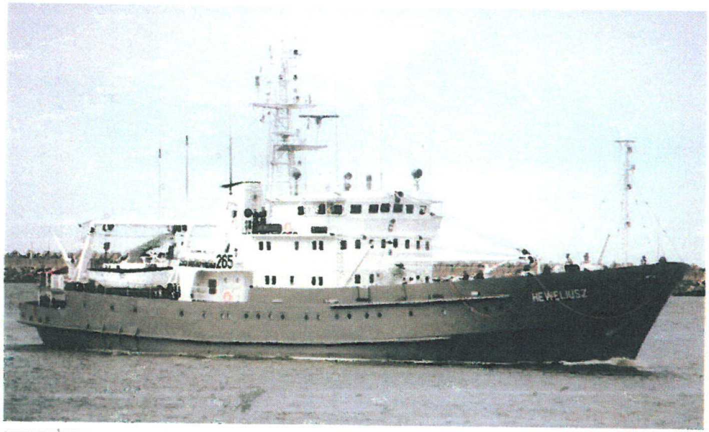


ARCTOWSKI — *7/2001, van Ginderen Collection* / 0114792



HEWELIUSZ — *7/2002, Per Körnefeldt* / 0533235

1 MOMA CLASS (PROJECT 861K) (AGS)

Name	*No*	*Builders*	*Commissioned*
KOPERNIK	261	Northern Shipyard, Gdansk	20 Feb 1971

Displacement, tons: 1,540 full load
Dimensions, feet (metres): 240.5 × 36.8 × 12.8 *(73.3 × 11.2 × 3.9)*
Main machinery: 2 Zgoda-Sulzer 6TD48 diesels; 3,300 hp(m) *(2.43 MW)* sustained; 2 shafts; cp props
Speed, knots: 17. **Range, miles:** 9,000 at 12 kt
Complement: 20 (8 officers) plus 40 scientists
Radars: Navigation: SRN 7453 Nogat; SRN 743X; I-band.

Comment: Forward crane removed in 1983. Based at Gdynia.

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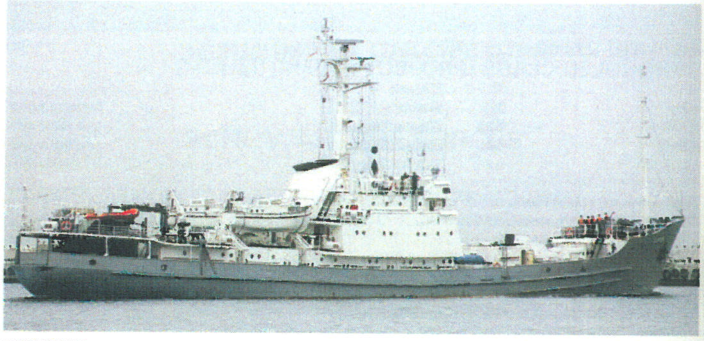

KOPERNIK — *6/2000, J Ciślak* / 0105247

2 SURVEY CRAFT (PROJECT 4234) (AGSC)

Name	*Builders*	*Commissioned*
K 10	Wisla, Gdansk	6 Feb 1989
K 4	Wisla, Gdansk	25 Sep 1989

Displacement, tons: 45 full load
Dimensions, feet (metres): 62 × 14.4 × 4.9 *(18.9 × 4.4 × 1.5)*
Main machinery: 1 Wola DM 150 diesel; 160 hp(m) *(117 kW)* sustained; 1 shaft
Speed, knots: 9
Complement: 10
Radars: Navigation: SRN 207A; I-band.

Comment: Coastal survey craft based at Gdynia. There are a number of survey launches and buoy tenders listed under *Auxiliaries*.

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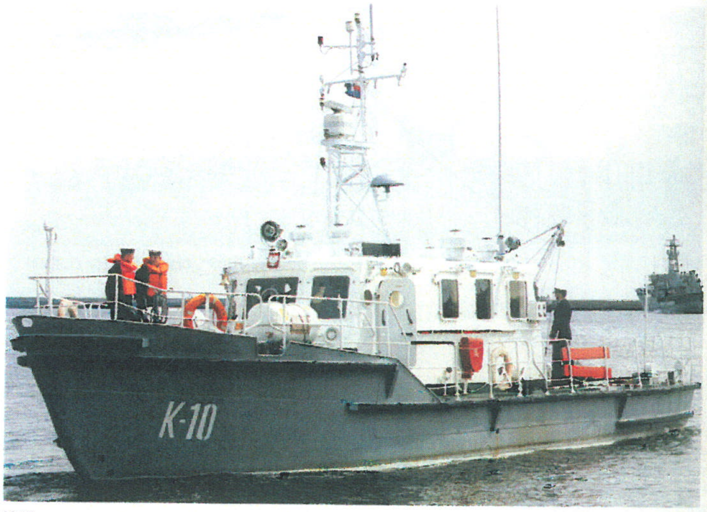

K 10 — *5/2000, J Ciślak* / 0105248

5 SURVEY CRAFT (PROJECT III/C) (AGSC)

M 35 **M 37-40**

Displacement, tons: 10 full load
Dimensions, feet (metres): 36.1 × 10.5 × 2.3 *(11 × 3.2 × 0.7)*
Main machinery: 1 Puck Rekin SW 400/MZ diesel; 95 hp(m) *(70 kW)*; 1 shaft
Speed, knots: 8. **Range, miles:** 184 at 8 kt
Complement: 5
Radars: Navigation: SRN 207A; I-band.

Comment: Based at Gdynia and Swinoujscie (M 35).

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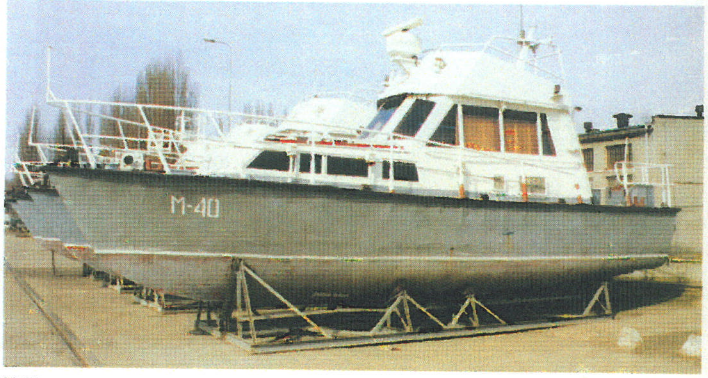

M 40 — *3/2003*, J Ciślak* / 0567515

INTELLIGENCE VESSELS

2 MODIFIED MOMA CLASS (PROJECT 863) (AGI)

Name	*No*	*Builders*	*Commissioned*
NAWIGATOR	262	Northern Shipyard, Gdansk	17 Feb 1975
HYDROGRAF	263	Northern Shipyard, Gdansk	8 May 1976

Displacement, tons: 1,677 full load
Dimensions, feet (metres): 240.5 × 35.4 × 12.8 *(73.3 × 10.8 × 3.9)*
Main machinery: 2 Zgoda-Sulzer 6TD48 diesels; 3,300 hp(m) *(2.43 MW)* sustained; 2 shafts
Speed, knots: 17. **Range, miles:** 7,200 at 12 kt
Complement: 87 (10 officers)
Missiles: 2 Fasta-4M quad launchers. SA-N-5.
Guns: 4—25 mm (2 twin) (262).
Countermeasures: ESM/ECM: intercept and jammer.
Radars: Navigation: 2 SRN 7453 Nogat; I-band.

Comment: Much altered in the upperworks and unrecognisable as Momas. The forecastle in *Hydrograf* is longer than in *Nawigator* and one deck higher. *Hydrograf* fitted for but not with two twin 25 mm gun mountings. Forward radome replaced by a cylindrical type in *Nawigator* and after ones removed on both ships. Based at Gdynia.

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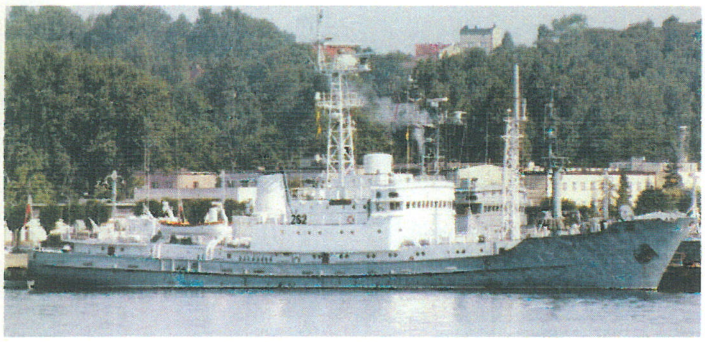
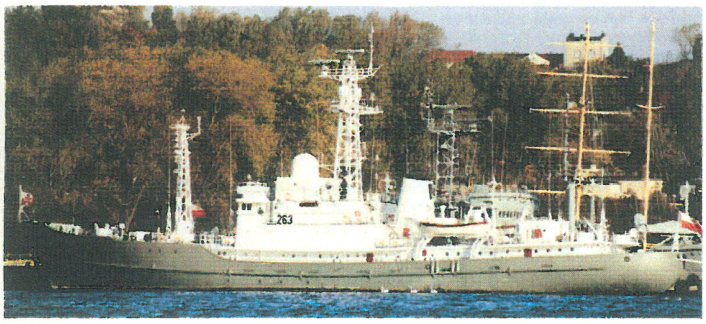

NAWIGATOR *7/2003*, J Ciślak* / 0567516


HYDROGRAF *10/2001, J Ciślak* / 0126242

TRAINING SHIPS

Notes: The three masted sailing ship *Dar Mlodziezy* is civilian owned and operated but also takes naval personnel for training.

1 WODNIK CLASS (PROJECT 888) (AXTH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
WODNIK	251	Northern Shipyard, Gdansk	19 Nov 1975	28 May 1976

Displacement, tons: 1,697 standard; 1,820 full load
Dimensions, feet (metres): 234.3 × 38.1 × 14.8 *(71.4 × 11.6 × 4.5)*
Main machinery: 2 Zgoda-Sulzer 6TD48 diesels; 2,650 hp(m) *(1.95 MW)* sustained; 2 shafts; cp props
Speed, knots: 16. **Range, miles:** 7,200 at 11 kt
Complement: 56 (24 officers) plus 101 midshipmen
Guns: 4 ZU-23-2MR Wrobel 23 mm (2 twin). 2 *(Wodnik)* or 4 *(Gryf)* 30 mm AK 230 (1 or 2 twin).
Radars: Navigation: 2 SRN 7453 Nogat; I-band.
Helicopters: Platform for 1 light.

Comment: Sister to former GDR *Wilhelm Pieck* and two Russian ships. Converted to a hospital ship (150 beds) in 1990 for deployment to the Gulf. Armament removed as part of the conversion but partially restored in 1992. Based at Gdynia. Second of class in reserve from 1999.

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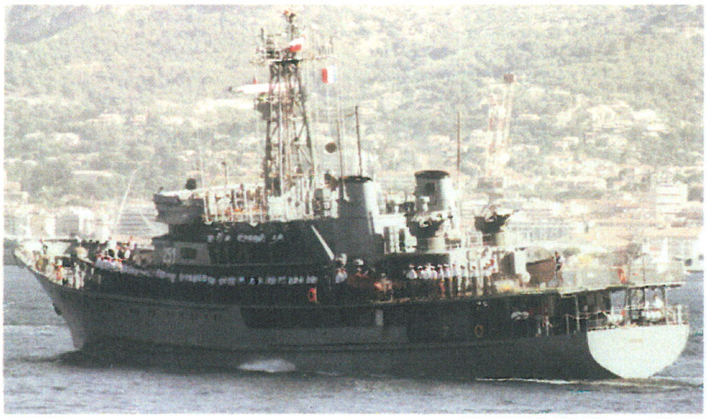
WODNIK *8/2002, Schaffer/Marsan* / 0533236

1 PROJECT 722 CLASS (AXL)

Name	*No*	*Builders*	*Launched*	*Commissioned*
PODCHORAZY	711	Wisla Shipyard, Gdansk	6 Apr 1974	30 Nov 1974

Displacement, tons: 180 (167, *Bryza*) full load
Dimensions, feet (metres): 94.5 × 21.7 × 6.4 *(28.8 × 6.6 × 2)*
Main machinery: 2 Wola DM 300 diesels; 300 hp(m) *(220 kW)*; 2 shafts
Speed, knots: 11. **Range, miles:** 1,410 at 11 kt
Complement: 11 plus 29 cadets
Radars: Navigation: 2 TRN 823; I-band.

Comment: Based at Hel.

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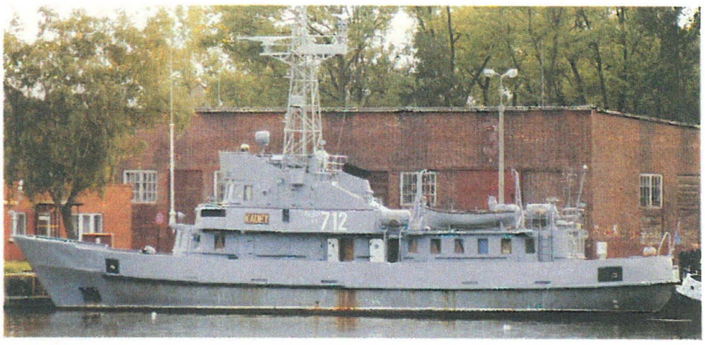
PROJECT 722 CLASS *9/2003*, J Ciślak* / 0567503

1 ISKRA CLASS (PROJECT B79) (SAIL TRAINING SHIP) (AXS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ISKRA	253	Gdansk Shipyard	6 Mar 1982	11 Aug 1982

Displacement, tons: 498 full load
Dimensions, feet (metres): 160.8 × 26.6 × 13.1 *(49 × 8.1 × 4.0)*
Main machinery: 1 Wola 75H12 diesel; 310 hp(m) *(228 kW)*; 1 auxiliary shaft; cp prop
Speed, knots: 9 (diesel)
Complement: 14 (6 officers) plus 50 cadets
Radars: Navigation: SRN 206; I-band.

Comment: Barquentine with 1,040 m² of sail. Used by the Naval Academy for training with a secondary survey role. Based at Gdynia.

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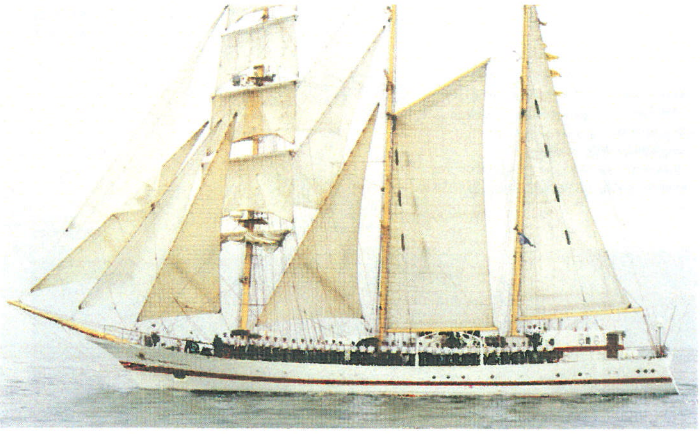
ISKRA *7/2003*, J Ciślak* / 0567504

AUXILIARIES

Note: Procurement of up to four Strategic Support Ships is reported to be under development. It is envisaged that such ships would be of approximately 10,000 tons with the capability of transporting about 500 troops plus some twenty vehicles and up to six helicopters. Subject to the programme being funded, the ships are to enter service by 2010.

1 BALTYK CLASS (PROJECT ZP 1200) (TANKER) (AORL)

Name	*No*	*Builders*	*Commissioned*
BALTYK	Z 1	Naval Shipyard, Gdynia	11 Mar 1991

Displacement, tons: 2,937 standard; 3,049 full load
Dimensions, feet (metres): 278.2 × 43 × 15.4 *(84.8 × 13.1 × 4.7)*
Main machinery: 2 Cegielski 8 ASL 25 diesels; 4,025 hp(m) *(2.96 MW)*; 2 shafts; cp props
Speed, knots: 15. **Range, miles:** 4,250 at 12 kt
Complement: 34 (4 officers)
Cargo capacity: 1,184 tons fuel, 92.7 tons lub oil
Guns: 4 ZU-23-2M Wrobel 23 mm (2 twin).
Radars: Navigation: SRN 7453 and SRN 207A; I-band.

Comment: Beam replenishment stations, one each side. First of a projected class of four, of which the others were cancelled. Based at Gdynia.

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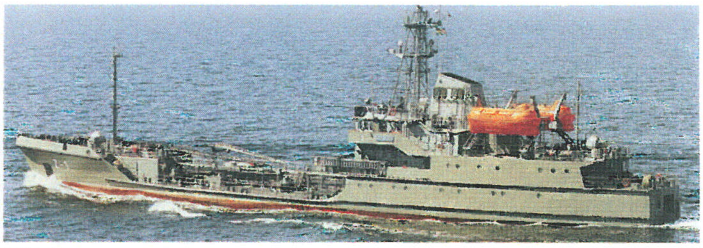
BALTYK *6/2000, Michael Nitz* / 0105254

1 PROJECT 890 CLASS (LOGISTICS SUPPORT VESSEL) (AKHM/APHM/AGI)

KONTRADMIRAL X CZERNICKI 511

Displacement, tons: 2,250 full load
Dimensions, feet (metres): 239.3 × 45.3 × 13.4 *(72.9 ×13.8 × 4.1)*
Main machinery: 2 Cegielski-Sulzer AL25D diesels; 2,934 hp(m) *(2.16 MW)* sustained; 2 shafts
Speed, knots: 14.1. **Range, miles:** 7,000 at 12 kt
Complement: 38
Military lift: 140 troops with full individual armament or ten 20 ft containers or four 20 ft containers and six STAR 266 army trucks
Missiles: SAM/Guns: 1 ZU 23-2MR Wrobel I/II mounts: combination of 2 Strela 2M (Grail) missiles and 2—23 mm guns.
Countermeasures: Decoys: 4 WNP81/9 9 barrelled 81 mm Jastrzab chaff launchers.
ESM: PIT intercept.
Radars: Surface search: SRN; E/F-band.
Navigation: SRN; I-band.
Helicopters: Platform for 1 helicopter (up to ten ton).

Comment: Conversion from a Project 130 Degaussing Vessel to Logistic Support Ship in Northern Shipyard, Gdansk, has included new upper and forward hull sections, provision of a helicopter deck and NBC protection. The ship has a 16 ton hydraulic crane and after ramp. The multirole ship is capable of sealift, acting as a forward maintenance unit and maritime surveillance and reconnaissance (using containerised ESM sensors) and replenishment at sea. Commissioned on 1 September 2001.

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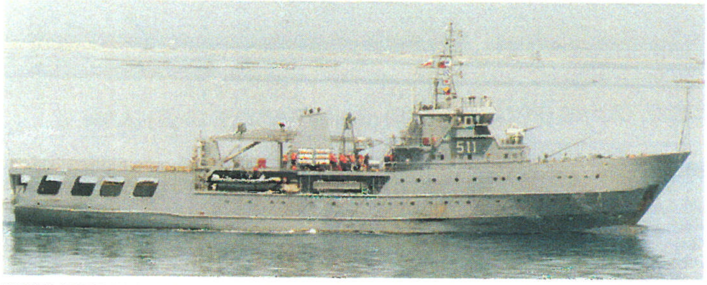
KONTRADMIRAL X CZERNICKI *4/2003*, A Sharma* / 0567505

1 MOSKIT CLASS (PROJECT B 199) (TANKER) (AOTL)

Name	*No*	*Builders*	*Launched*	*Commissioned*
MEDUZA	Z 8	Rzeczna, Wroclaw Shipyard	14 Sep 1969	21 July 1970

Displacement, tons: 1,225 full load
Dimensions, feet (metres): 190.3 × 30.5 × 10.8 *(58 × 9.3 × 3.3)*
Main machinery: 1 Magdeburg diesel; 965 hp(m) *(720 kW)*; 1 shaft
Speed, knots: 10. **Range, miles:** 1,200 at 10 kt
Complement: 21 (3 officers)
Cargo capacity: 656.5 tons
Guns: 4 ZU-23-2M 23 mm (2 twin).
Radars: Navigation: TRN 823; I-band.

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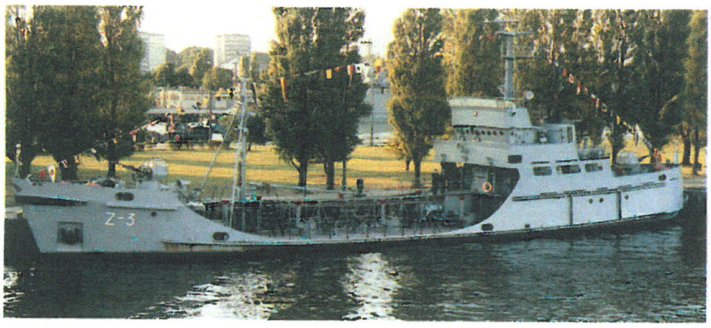
MOSKIT CLASS *9/2001, J Ciślak* / 0126240

2 KORMORAN CLASS (YPT)

Name	*Builders*	*Launched*	*Commissioned*
K 8	Naval Shipyard, Gdynia	26 Aug 1970	3 July 1971
K 11	Naval Shipyard, Gdynia	23 June 1971	11 Dec 1971

Displacement, tons: 150 full load
Dimensions, feet (metres): 114.8 × 19.7 × 5.2 *(35 × 6 × 1.6)*
Main machinery: 2 Type M 50F5 diesels; 2,200 hp(m) *(1.6 MW)*; 2 shafts
Speed, knots: 19. **Range, miles:** 550 at 15 kt
Complement: 24
Guns: 2 ZU-23-2M Wrobel 23 mm (twin).
Radars: Navigation: SRN 206/301; I-band.

Comment: Armament updated in 1993. Both based at Gdynia.

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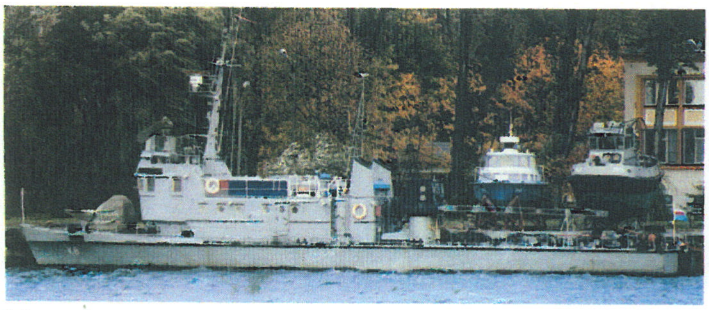
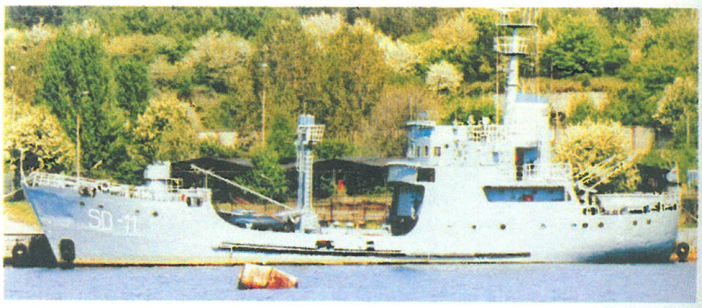

K 8 *10/2001, J Ciślak* / 0126239

3 MROWKA CLASS (PROJECT B 208) (DEGAUSSING VESSELS) (YDG)

Name	*No*	*Builders*	*Commissioned*
WRONA	SD 11	Naval Shipyard, Gdynia	10 Oct 1971
RYS	SD 12	Naval Shipyard, Gdynia	25 June 1972
—	SD 13	Naval Shipyard, Gdynia	16 Dec 1972

Displacement, tons: 660 full load
Dimensions, feet (metres): 144.4 × 26.6 × 9.5 *(44 × 8.1 × 2.9)*
Main machinery: 1 6NV D36 diesel; 957 hp(m) *(704 kW)*; 1 shaft
Speed, knots: 9.5. **Range, miles:** 2,230 at 9.5 kt
Complement: 37
Guns: 2—25 mm (twin) (SD 11 and 13); 2 ZU-23-2M Wrobel 23 mm (twin) (SD 12).
Radars: Navigation: SRN 206; I-band.

Comment: Names are unofficial. SD 12 based at Swinoujscie, remainder at Gdynia. ***UPDATED***


WRONA *5/2002*, J Ciślak* / 0567508

2 PIAST CLASS (PROJECT 570) (SALVAGE SHIPS) (ARS)

Name	*No*	*Builders*	*Commissioned*
PIAST	281	Northern Shipyard, Gdansk	26 Jan 1974
LECH	282	Northern Shipyard, Gdansk	30 Nov 1974

Displacement, tons: 1,887 full load
Dimensions, feet (metres): 238.5 × 38.1 × 13.1 *(72.7 × 11.6 × 4)*
Main machinery: 2 Zgoda-Sulzer 6TD48 diesels; 3,300 hp(m) *(2.43 MW)* sustained; 2 shafts; cp props
Speed, knots: 15. **Range, miles:** 3,000 at 12 kt
Complement: 56 (8 officers) plus 12 spare
Missiles: SAM: 2 Fasta 4M twin launchers for SA-N-5.
Guns: 4—25 mm (2 twin).
Radars: Navigation: 2 SRN 7453 Nogat; I-band.

Comment: Basically a 'Moma' class hull with towing and firefighting capabilities. Ice-strengthened hulls. Wartime role as hospital ships. Carry three-man diving bells capable of 100 m depth and a decompression chamber. ROV added and other salvage improvements made in 1997/98. Based at Gdynia. Guns may not be carried.
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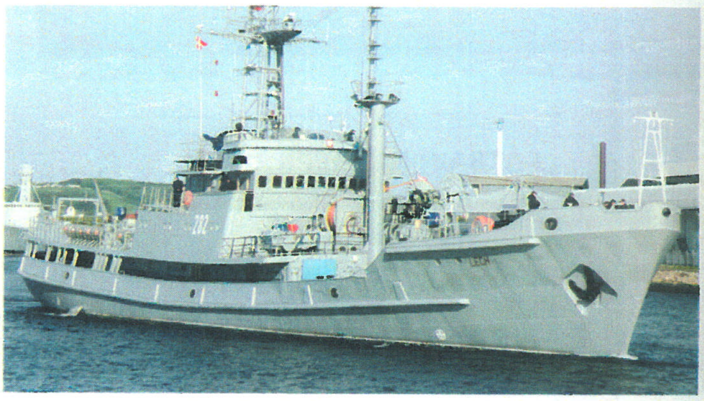
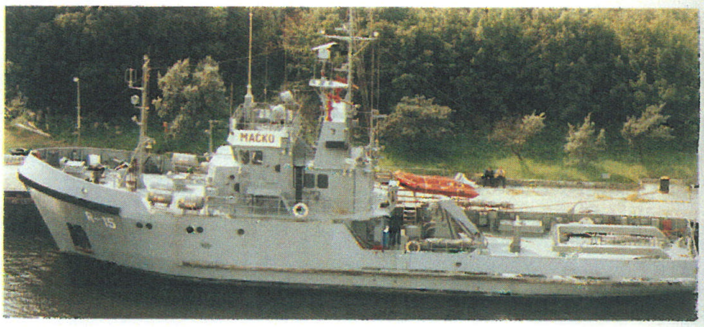

LECH *5/2002, E & M Laursen* / 052683

2 ZBYSZKO CLASS (PROJECT B 823) (SALVAGE SHIPS) (ARS)

Name	*No*	*Builders*	*Commissioned*
ZBYSZKO	R 14	Ustka Shipyard	8 Nov 1991
MACKO	R 15	Ustka Shipyard	20 Mar 1992

Displacement, tons: 380 full load
Dimensions, feet (metres): 114.8 × 26.2 × 9.8 *(35 × 8 × 3)*
Main machinery: 1 Sulzer 6AL20/24D; 750 hp(m) *(551 kW)*; 1 shaft
Speed, knots: 11. **Range, miles:** 3,000 at 10 kt
Complement: 15
Radars: Navigation: SRN 402X; I-band.

Comment: Type B-823 ordered 30 May 1988. Carries a decompression chamber and two divers. Mobile gantry crane on the stern. Based at Kolobrzeg.
VERIFIED

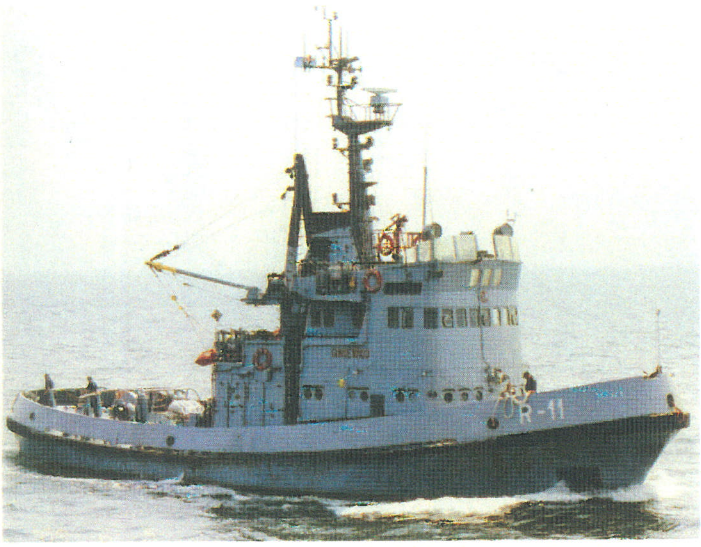

MACKO *8/1999, van Ginderen Collection* / 008158

1 PLUSKWA CLASS (PROJECT R-30) (SALVAGE TUG) (ATS)

Name	*No*	*Builders*	*Commissioned*
GNIEWKO	R 11	Naval Shipyard, Gdynia	29 Sep 1981

Displacement, tons: 365 full load
Dimensions, feet (metres): 105 × 29.2 × 10.2 *(32 × 8.9 × 3.1)*
Main machinery: 1 Cegielski-Sulzer 6AL25/30 diesel; 1,470 hp(m) *(1.08 MW)*; 1 shaft
Speed, knots: 12. **Range, miles:** 4,000 at 7 kt
Complement: 18
Radars: Navigation: SRN 443 XEA; I-band.

Comment: Based at Hel. Bollard pull 15 tons. ***UPDATED***



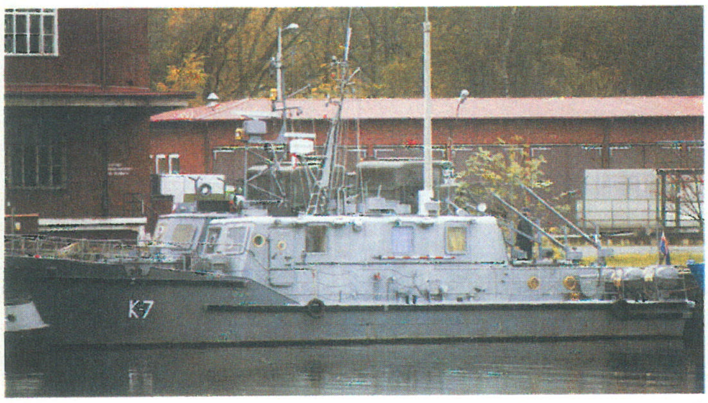
GNIEWKO *6/2003*, J Ciślak* / 0567517

1 DIVING TENDER AND TRANSPORT (YDT/YFB)

K 12

Displacement, tons: 46 full load
Dimensions, feet (metres): 61.7 × 14.4 × 4.9 *(18.8 × 4.4 × 1.5)*
Main machinery: 1 Wola diesel; 150 hp(m) *(112 kW)*; 1 shaft
Speed, knots: 9
Complement: 4-10
Radars: Navigation: SRN 2061; I-band.

Comment: Harbour craft used for various purposes. Built in 1979. ***VERIFIED***



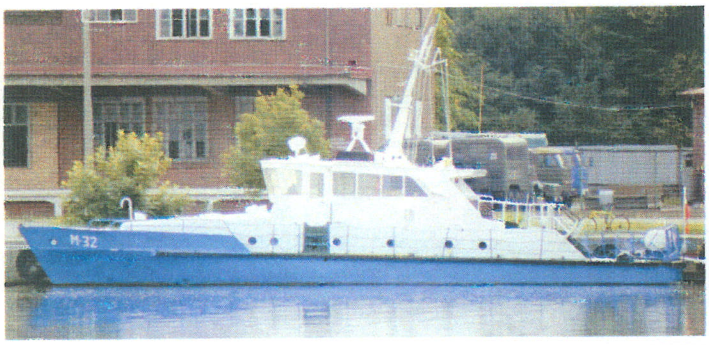
HARBOUR CRAFT *11/2000, J Cislak* / 0105257

3 TRANSPORT CRAFT (YFB)

M 1 M 3 M 32

Displacement, tons: 74 full load
Dimensions, feet (metres): 94.2 × 19 × 4.3 *(28.7 × 5.8 × 1.3)*
Main machinery: 3 M50F5 diesels; 3,600 hp(m) *(2.65 MW)*; 3 shafts
Speed, knots: 27
Complement: 7 plus 30
Radars: Navigation: SRN 207A; I-band.

Comment: Details given are for M 1 built at Gdynia. The other two are similar but slower and smaller. All can be used as emergency patrol craft. M 1 based at Gdynia as an Admirals' launch. ***UPDATED***

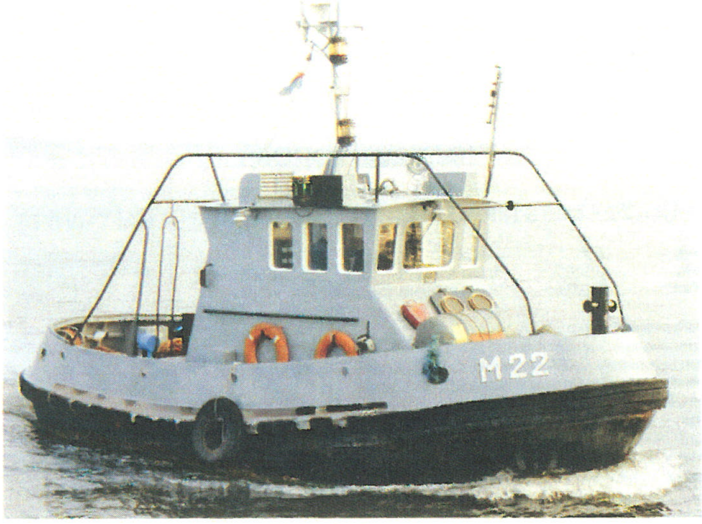


M 32 *9/2003*, J Ciślak* / 0567509

15 MISCELLANEOUS HARBOUR CRAFT

B 3, B 7, B 9, B 11-13, W 2, M 5, M 12, M 22, M 30, M 37-40

Comment: M numbers are patrol launches; B numbers are freighters and oil lighters; *W 2* is a floating workshop. ***UPDATED***



M 22 *3/2002*, J Ciślak* / 0567510

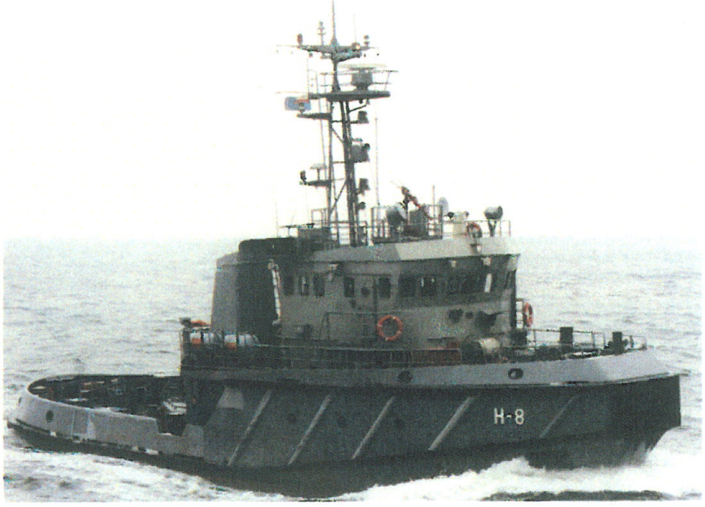
TUGS

1 H 960 CLASS (ATA)

H 6

Displacement, tons: 340 full load
Dimensions, feet (metres): 91.2 × 26.2 × 12.1 *(27.8 × 8 × 3.7)*
Main machinery: 1 Sulzer GATL 25 D diesels; 1,306 hp(m) *(960 kW)*; 1 shaft
Speed, knots: 12. **Range, miles:** 1,150 at 12 kt
Complement: 17 (1 officer)
Radars: Navigation: SRN 401 XTA; I-band.

Comment: Built at Nauta Ship Repair Yard, Gdynia and commissioned 25 September 1992. Based at Hel. ***VERIFIED***



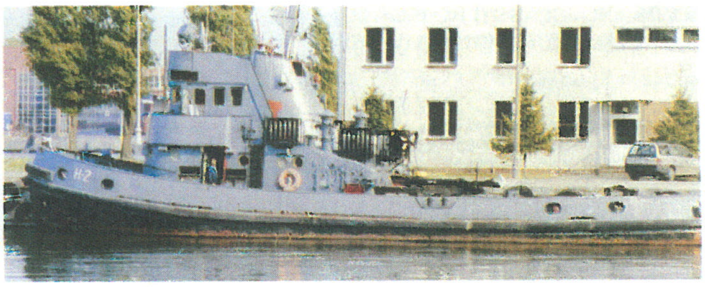
H 960 CLASS *9/2001, J Ciślak* / 0126233

8 HARBOUR TUGS (PROJECTS H 900, H 800, H 820) (YTB/YTM)

H 1-2 (Type 800) **H 3-5, H 7** (Type 900) **H 9-10** (Type 820)

Displacement, tons: 218 full load
Dimensions, feet (metres): 84 × 22.3 × 11.5 *(25.6 × 6.8 × 3.5)*
Main machinery: 1 Cegielski-Sulzer 6AL20/24H diesel; 935 hp(m) *(687 kW)*; 1 shaft
Speed, knots: 11. **Range, miles:** 1,500 at 10 kt
Complement: 17
Radars: Navigation: SRN 206; I-band.

Comment: Details given are for *H 3, 4, 5* and *7*. Completed 1979-81. Have firefighting capability except *H 9-10*. *H 1-2* completed 1970 and *H 9-10* in 1993. ***UPDATED***



H 2 *9/2003*, J Ciślak* / 0567511

SEA DETACHMENT OF THE BORDER GUARD (MOSG)

Headquarters Appointments

Commandant MOSG:
Rear Admiral Konrad Wisniowskki
Deputy Commandant:
Commander Marek Borkowski
Deputy Commandant:
Captain Marec Ilnicki

Bases

Gdansk (HQ and Kaszubski Division)
Swinoujscie (Pomorski Division)

General

MOSG (Morski Oddzial Strazy Granicznej) formed on 1 August 1991. Vessels have blue hulls with red and yellow striped insignia. Superstructures are painted white. MOSG also operates one Piper PA 34 Seneca II patrol aircraft.

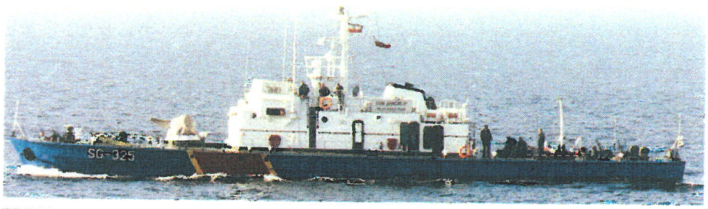
PATROL FORCES

2 OBLUZE CLASS (PROJECT 912) (LARGE PATROL CRAFT) (WPB)

Name	*No*	*Builders*	*Commissioned*
ZEFIR	SG-323	Naval Shipyard, Gdynia	10 June 1967
TECZA	SG-325	Naval Shipyard, Gdynia	31 Jan 1968

Displacement, tons: 236 full load
Dimensions, feet (metres): 135.5 × 21.3 × 7 *(41.3 × 6.5 × 2.1)*
Main machinery: 2 40DM diesels; 4,400 hp(m) *(3.24 MW)* sustained; 2 shafts
Speed, knots: 24. **Range, miles:** 1,200 at 12 kt
Complement: 19
Guns: 4 AK 230 30 mm (2 twin) (SG 323). 2 AK 230 30 mm (twin) (SG 325).
Depth charges: 2 internal racks.
Radars: Surface search: SRN 207; I-band.
Sonars: Tamir II (MG 11); hull-mounted; active attack; high frequency.

Comment: First of class *Fala* is now a museum ship. Both based at Kolobrzeg. ***VERIFIED***



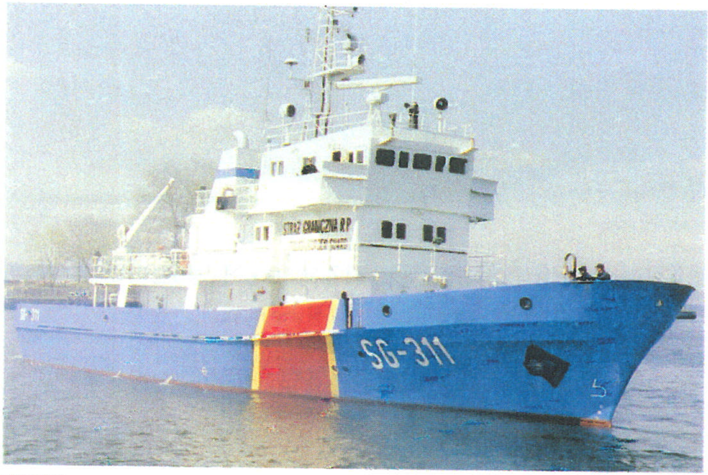
TECZA *6/1999, Maritime Photographic* / 0081596

2 KAPER CLASS (PROJECT SKS-40) (LARGE PATROL CRAFT) (WPB)

Name	*No*	*Builders*	*Commissioned*
KAPER I	SG-311	Wisla Yard, Gdansk	21 Jan 1991
KAPER II	SG-312	Wisla Yard, Gdansk	3 Apr 1992

Displacement, tons: 470 full load
Dimensions, feet (metres): 139.4 × 27.6 × 9.2 *(42.5 × 8.4 × 2.8)*
Main machinery: 2 Sulzer 8ATL25/30 diesels; 4,720 hp(m) *(3.47 MW)*; 2 shafts; cp props
Speed, knots: 17. **Range, miles:** 2,800 at 14 kt
Complement: 15
Guns: 2—7.62 mm MGs.
Radars: Surface search: SRN 207; I-band.
Navigation: Racal Decca; I-band.

Comment: *Kaper I* completed at Wisla Yard, Gdansk in January 1991, *Kaper II* on 1 October 1994. Have Simrad fish-finding sonars fitted. Used for Fishery Protection. 311 based at Gdansk and 312 at Kolobrzeg. ***UPDATED***



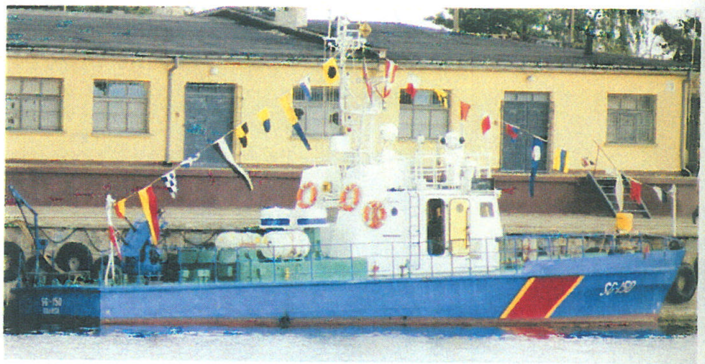
KAPER I *5/2003*, J Ciślak* / 0567512

6 WISLOKA CLASS (PROJECT 90) (COASTAL PATROL CRAFT) (WPB)

SG-142 **SG-144-146** **SG-150** **SG-152**

Displacement, tons: 45 full load
Dimensions, feet (metres): 69.6 × 14.8 × 5.2 *(21.2 × 4.5 × 1.6)*
Main machinery: 2 Wola 31 ANM28 H12A diesels; 1,000 hp(m) *(735 kW)*; 2 shafts
Speed, knots: 18. **Range, miles:** 300 at 18 kt
Complement: 6
Guns: 2—12.7 mm MGs (twin) and 1 ZM rocket launcher.
Radars: Surface search: SRN 207; I-band.

Comment: Built at Wisla Shipyard, Gdansk and completed between October 1973 and August 1977. Three are based at Gdansk and three at Swinoujscie. ***UPDATED***



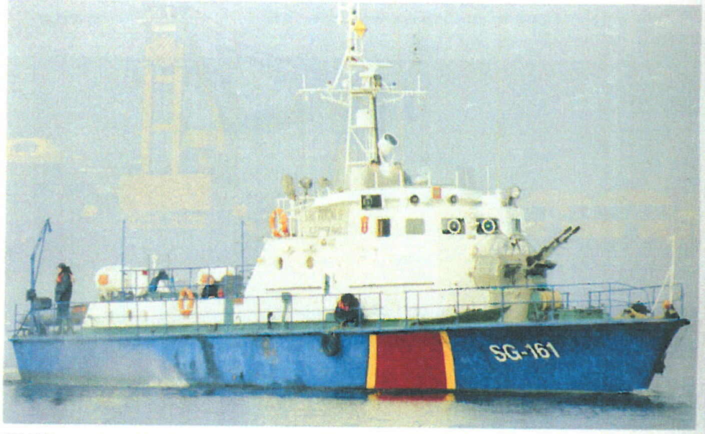
SG-150 *6/2003*, J Ciślak* / 0567513

2 PILICA CLASS (PROJECT 918) (COASTAL PATROL CRAFT) (WPB)

SG-161 **SG-164**

Displacement, tons: 93 full load
Dimensions, feet (metres): 94.8 × 19 × 4.6 *(28.9 × 5.8 × 1.4)*
Main machinery: 3 M 50-F6 diesels; 3,604 hp(m) *(2.65 MW)*; 3 shafts
Speed, knots: 27. **Range, miles:** 1,160 at 12 kt
Complement: 12
Guns: 2 ZU-23-2M Wrobel 23 mm (twin).
Radars: Surface search: SRN 231; I-band.

Comment: Same as naval craft but without the torpedo tubes and sonar. Built by Naval Shipyard, Gdynia and completed between June 1973 and October 1974. One based at Swinoujscie and one at Gdansk. ***UPDATED***



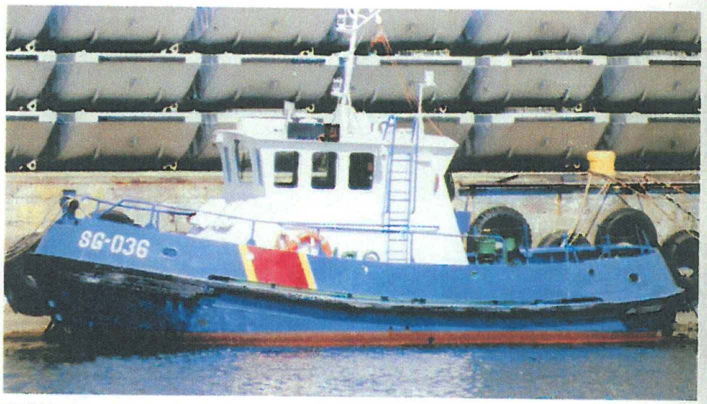
SG-161 *3/2002*, J Cislak* / 0567519

1 PATROL LAUNCH (PROJECT 6100) (WYFL)

SG 036

Displacement, tons: 41 full load
Dimensions, feet (metres): 35.3 × 14.4 × 5.2 *(10.7 × 4.4 × 1.6)*
Main machinery: 1 Wola DM 150 diesel; 150 hp *(112 kW)*
Speed, knots: 8
Complement: 4

Comment: Built in 1985. Similar to those in Polish naval service. ***NEW ENTRY***



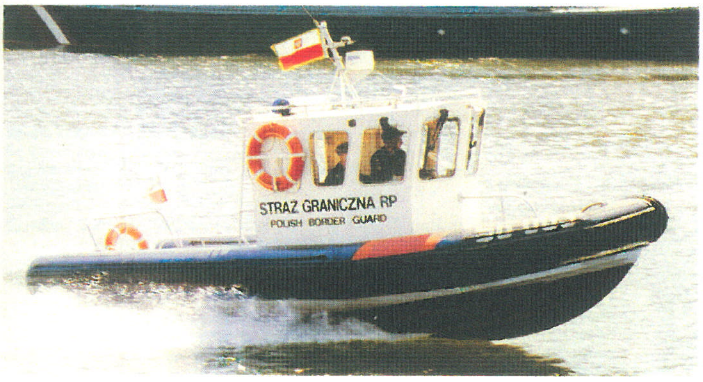
SG 036 *5/2003*, J Ciślak* / 0567518

4 SPORTIS CLASS (PROJECT 7500) FAST INTERCEPT CRAFT (WPBF)

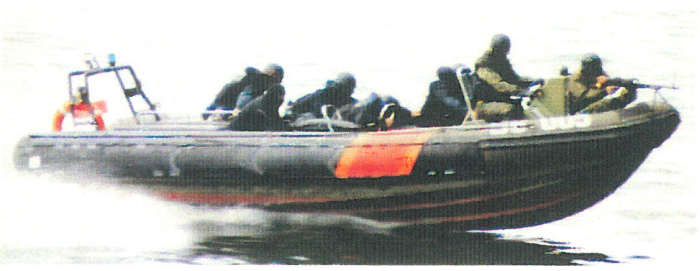
SG-002-005

Displacement, tons: 2
Dimensions, feet (metres): 24.6 × 9.2 × 1.3 *(7.5 × 2.8 × 0.4)*
Main machinery: Volvo Penta 230 hp (170 kW)
Speed, knots: 42.
Complement: 3.

Comment: Built in Bojano in 1996. ***UPDATED***



SG-003 *5/2003*, J Ciślak* / 0567484



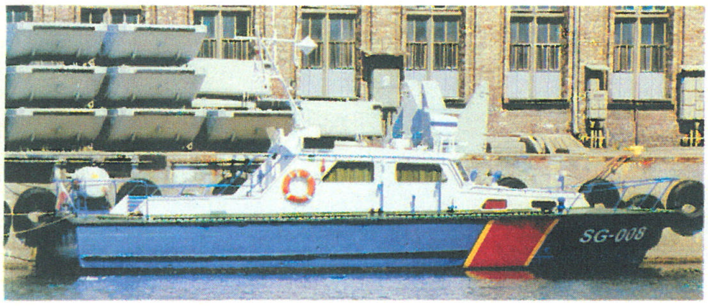
SG-005 *5/2002*, J Ciślak* / 0567485

2 PATROL CRAFT (WPB)

SG-006 **SG-008**

Displacement, tons: 16
Dimensions, feet (metres): 42.7 × 12.14 × 3.6 *(13.0 × 3.7 × 1.1)*
Main machinery: 1 Wola; 200 hp *(147 kW)*; 1 shaft
Speed, knots: 11
Complement: 4

Comment: Harbour craft built at Wisla Shipyard, Gdansk, 1988-89. ***UPDATED***



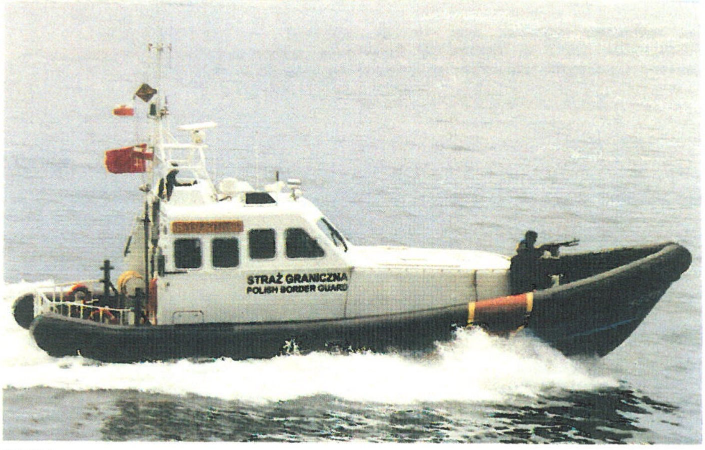
SG-008 *5/2003*, J Ciślak* / 0567483

2 STRAZNIK CLASS (PROJECT SAR-1500) (WPBF)

Name	*No*	*Builders*	*Commissioned*
STRAZNIK 1	SG-211	Damen Yard, Gdynia	29 Apr 2000
STRAZNIK 2	SG-212	Damen Yard, Gdynia	7 July 2000

Displacement, tons: 26
Dimensions, feet (metres): 49.9 × 17.7 × 2.95 *(15.2 × 5.39 × 0.90)*
Main machinery: 2 MAN D2848 diesels; 1,360 hp *(1,000 kW)*; water jet system
Speed, knots: 35. **Range, miles:** 200 at 30 kt
Complement: 4 (1 officer)
Guns: 1—7.62 mm MG.
Radars: Surface search: SIMRAD; I-band.

Comment: Contract between MOSG and Damen Shipyard signed 5 October 1999. Based on Dutch SAR 1500 lifeboat. Hull and superstructure of aluminium alloy. ***UPDATED***



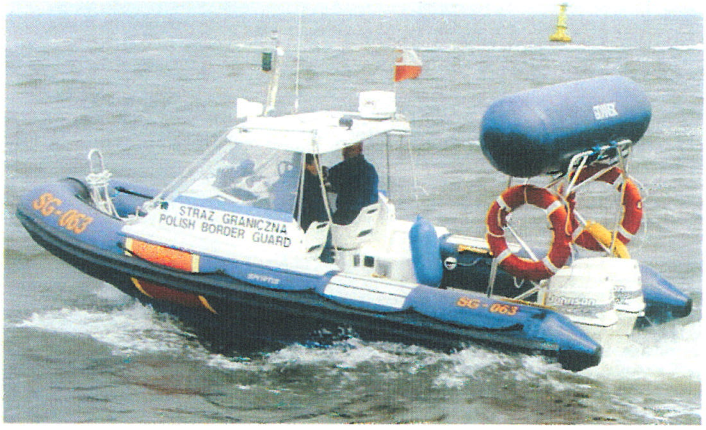
SG-211 *5/2002*, J Ciślak* / 0569790

6 MODIFIED SPORTIS CLASS (PROJECT 7500) (FAST INTERCEPT CRAFT) (WPBF)

SG 061-066

Displacement, tons: 1.9
Dimensions, feet (metres): 20.0 × 7.5 × 1.3 *(6.1 × 2.3 × 0.4)*
Main machinery: 2 Johnson outboard motors; 120 hp *(89.6 kW)*
Speed, knots: 35
Complement: 2

Comment: Built at Bojano in 2001. Located at Border units along the coast. ***NEW ENTRY***



SG 063 *6/2003*, MOSG* / 0567506

Portugal
MARINHA PORTUGUESA

Country Overview

The Republic of Portugal is situated in south-western Europe in the western portion of the Iberian Peninsula. It is bordered to the north and east by Spain and has a 967 n mile coastline with the Atlantic Ocean. The Azores and Madeira Islands in the Atlantic are integral parts of the republic, the total area of which is 35,553 square miles. Lisbon is the capital, largest city and principal port. There are further ports at Leixões (near Oporto), Setúbal, and Funchal (Madeira). Territorial seas (12 n miles) and an EEZ (200 n miles) are claimed.

Headquarters Appointments

Chief of Naval Staff:
Admiral Francisco António Torres Vidal Abreu
Deputy Chief of Naval Staff:
Vice Admiral António Joao Neves de Bettencourt
Naval Commander:
Vice Admiral Américo da Silva Santos
Azores Maritime Zone Commander:
Rear Admiral Alvaro Rodrigues Gaspar
Madeira Maritime Zone Commander:
Captain Roberto Figueiredo Robles
Marine Corps Commander:
Rear Admiral Fernando Manuel Oliveira Vargas de Matos

Diplomatic Representation

Defence and Naval Attaché in London, Dublin and The Hague:
Captain Augusto Mourão Ezequiel
Naval Attaché in Washington and Ottawa:
Captain Augusto César da Gama Ferreira de Carvalho
Defence Attaché in Luanda, Kinshasa, Brazzaville and Windhoek:
Major General José Carlos Mendonça da Luz
Defence Attaché in Maputo, Lillongwe, Harare and Dar-Es-Salam
Rear Admiral Eurico Ferreira de Carvalho
Defence Attaché in Madrid, Cairo and Athens:
Lieutenant Colonel Carlos Manuel Santos Gaudêncio
Defence Attaché in S. Tomé and Libreville:
Lieutenant Colonel Joaquim Epifânio Santana Santos
Defence Attaché in Bissau, Conakry and Dakar:
Captain João Pereira de Araújo
Defence Attaché in Brasilia:
Captain Duarte Veríssimo Pires Torrão
Defence Attaché in Berlin, Prague, Copenhagen, Stockholm and Oslo:
Captain Jorge Alberto Araújo Cunha Serra
Defence Attaché in Warsaw, Budapest, Kiev, Bucharest and Bratislava:
Colonel Pedro Miguel de Palhares Veloso da Silva
Defence Attaché in Canberra:
Colonel Américo Vilarinho Fernandes Alves
Defence Attaché in Jakarta:
Captain João Carlos Correia Marques
Defence Attaché in Paris, Luxembourg and Brussels:
Colonel Vítor Manuel Nunes dos Santos
Defence Attaché in Rabat and Tunis:
Captain Carlos Fernando Guimarães Bandarra Branco
Defence Attaché in Praia:
Lieutenant Colonel José Maria Rebocho Pais Paula Santos
Defence Attaché in Pretoria:
Commander Leonel António da Silva Reis
Defence Attaché in Rome, Tel-Aviv and Ankara:
Lieutenant Colonel José Carlos Filipe Antunes Calçada

Personnel

(a) 2004: 11,600 (1,690 officers) including 1,460 marines
(b) 4 months national service

Marine Corps

2 battalions, 1 special operations detachment, 1 naval police unit

Bases

Main Base: Lisbon—Alfeite
Dockyard: Arsenal do Alfeite
Fleet Support: Porto, Portimão, Funchal, Ponta Delgada, Tróia
Air Base: Montijo (Lisbon)

Naval Air

The helicopter squadron was formally activated on 23 September 1993 at Montijo air force base, Lisbon. Operational and logistic procedures are similar to the air force.

Prefix to Ships' Names

NRP (Navio da República Portuguesa)

Strength of the Fleet

Type	*Active (Reserve)*	*Building (Projected)*
Submarines (Patrol)	2	(3)
Frigates	6	—
Corvettes	10	—
Patrol Craft	9	(10)
Coastal/River Patrol Craft	13	(1)
LPD	—	(1)
LCTs/LST	1	(1)
Survey Ships and Craft	10	—
Sail Training Ships	4	—
Replenishment Tanker	1	—
Buoy Tenders	2	—

DELETIONS

Corvettes

2002	*Oliveira e Carmo*
2003	*Honorio Barreto*

Patrol Forces

2001	*Albatroz, Açor* (both to East Timor)
2002	*Geba, Cunene*
2003	*Zambeze, Limpopo, Andorinha*

Auxiliaries

2002	*Almeido Carvalho*

PENNANT LIST

Submarines

S 164	Barracuda
S 166	Delfim

Frigates

F 330	Vasco da Gama
F 331	Alvares Cabral
F 332	Corte Real
F 480	Comandante João Belo
F 481	Comandante Hermenegildo Capelo
F 483	Comandante Sacadura Cabral

Corvettes

F 471	Antonio Enes
F 475	João Coutinho
F 476	Jacinto Candido
F 477	Gen Pereira d'Eça
F 484	Augusto de Castilho
F 486	Baptista de Andrade
F 487	João Roby
F 488	Afonso Cerqueira

Patrol Forces

P 370	Rio Minho
P 1140	Cacine
P 1144	Quanza
P 1146	Zaire
P 1150	Argos
P 1151	Dragão
P 1152	Escorpião
P 1153	Cassiopeia
P 1154	Hidra
P 1155	Centauro
P 1156	Orion
P 1157	Pégaso
P 1158	Sagitario
P 1161	Save
P 1165	Aguia
P 1167	Cisne

Amphibious Forces

LDG 203	Bacamarte

Service Forces

A 520	Sagres
A 521	Schultz Xavier
A 522	D. Carlos I
A 523	Almirante Gago Coutinho
A 5201	Vega
A 5203	Andromeda
A 5204	Polar
A 5205	Auriga
A 5210	Bérrio
UAM 201	Creoula

SUBMARINES

Notes: Project Definition for three replacement submarines completed in early 2000. Best and Final Offers presented by DCN and German Submarine Consortium in November 2000. A contract for two submarines (with an option for a third) is expected in 2004 for delivery in 2009. The contenders are believed to be the 'Scorpene Compact' class and Type 212A.

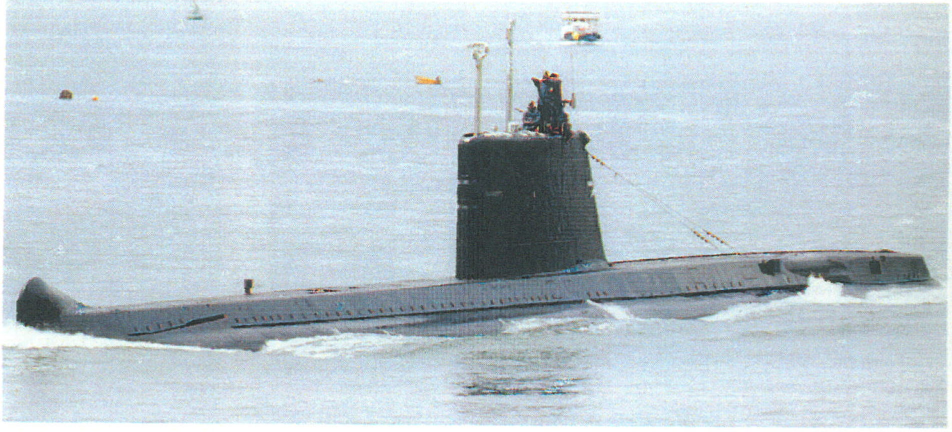
2 ALBACORA (DAPHNÉ) CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
BARRACUDA	S 164	Dubigeon-Normandie, Nantes	19 Oct 1965	24 Apr 1967	4 May 1968
DELFIM	S 166	Dubigeon-Normandie, Nantes	14 May 1967	23 Sep 1968	1 Oct 1969

Displacement, tons: 869 surfaced; 1,043 dived
Dimensions, feet (metres): 189.6 × 22.3 × 17.1 *(57.8 × 6.8 × 5.2)*
Main machinery: Diesel-electric; 2 SEMT-Pielstick 12 PA4 V 185 diesels; 2,450 hp(m) *(1.8 MW)*; 2 Jeumont Schneider alternators; 1.7 MW; 2 motors; 2,600 hp(m) *(1.9 MW)*; 2 shafts
Speed, knots: 13.5 surfaced; 16 dived
Range, miles: 2,710 at 12.5 kt surfaced; 2,130 at 10 kt snorting
Complement: 54 (7 officers)

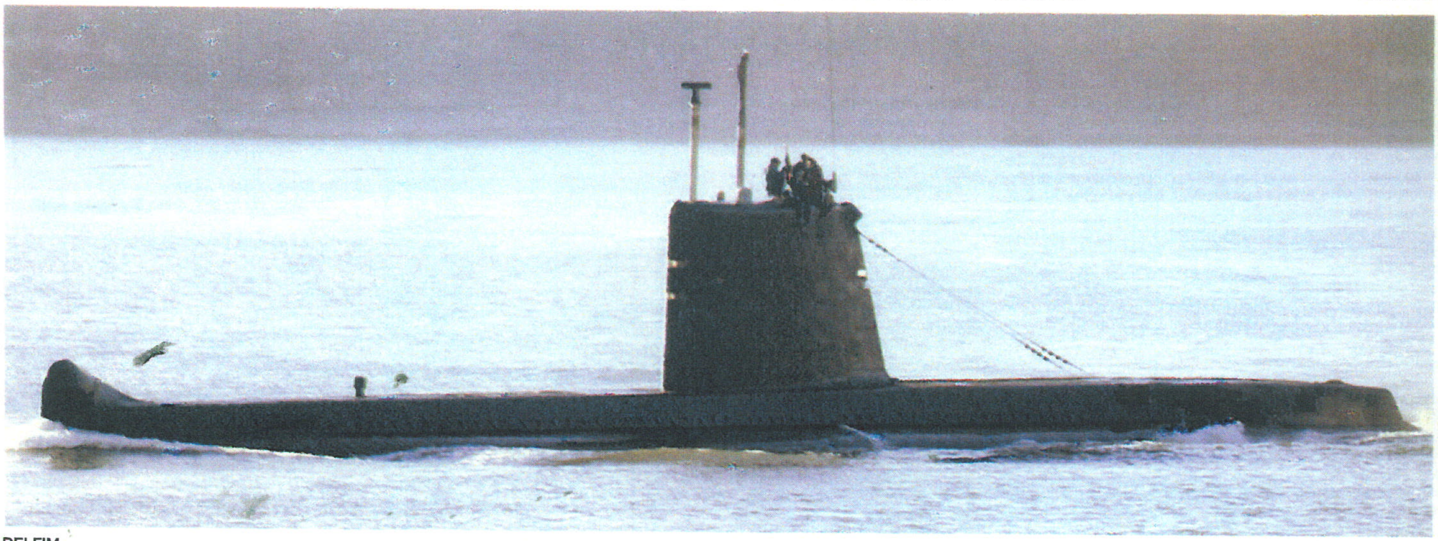
Torpedoes: 12—21.7 in *(550 mm)* (8 bow, 4 stern) tubes. ECAN E14; anti-surface; passive homing to 12 km *(6.6 n miles)* at 25 kt; warhead 300 kg or ECAN L3; anti-submarine; active homing to 5.5 km *(3 n miles)* at 25 kt; warhead 200 kg. No reloads.
Countermeasures: ESM: ARUR; radar warning.
Weapons control: DLT D3 torpedo control.
Radars: Surface search: Kelvin Hughes KH 1007; I-band.
Sonars: Thomson Sintra DSUV 2; passive search and attack; medium frequency.
DUUA 2; active search and attack; 8.4 kHz.

Modernisation: New radar fitted in 1993-94.
Structure: Diving depth, 300 m *(984 ft)*. Similar to French 'Daphne' class but without the external modification to the hull.



BARRACUDA *7/1999*, B Sullivan* / 0081601

Operational: *Albacora* paid off mid-2000 and cannibalised for spares. These two are planned to remain in service until at least 2005 although only one boat is reported to be operational.
UPDATED



DELFIM *6/2003*, B Sullivan* / 0569801

FRIGATES

Notes: It is planned to replace the 'João Belo' class frigates with three frigates. This may be fulfilled by the transfer of decommissioned 'Oliver Hazard Perry' class (possibly FFG 12 and FFG 14) in 2004-05. Further transfers are anticipated.

3 VASCO DA GAMA (MEKO 200) CLASS (FFGHM)

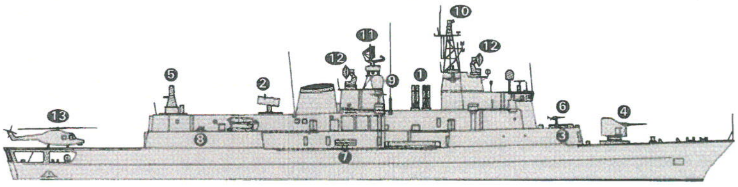
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
VASCO DA GAMA	F 330	Blohm + Voss, Hamburg	1 Feb 1989	26 June 1989	18 Jan 1991
ALVARES CABRAL	F 331	Howaldtswerke, Kiel	2 June 1989	6 June 1990	24 May 1991
CORTE REAL	F 332	Howaldtswerke, Kiel	24 Nov 1989	6 June 1990	22 Nov 1991

Displacement, tons: 2,700 standard; 3,300 full load
Dimensions, feet (metres): 380.3 oa; 357.6 pp × 48.7 × 20 *(115.9; 109 × 14.8 × 6.1)*
Main machinery: CODOG; 2 GE LM 2500 gas turbines; 53,000 hp *(39.5 MW)* sustained; 2 MTU 12V 1163 TB83 diesels; 8,840 hp(m) *(6.5 MW)*; 2 shafts; cp props
Speed, knots: 32 gas; 20 diesel
Range, miles: 4,900 at 18 kt; 9,600 at 12 kt
Complement: 182 (23 officers) (including aircrew of 16 (4 officers)) plus 16 Flag Staff

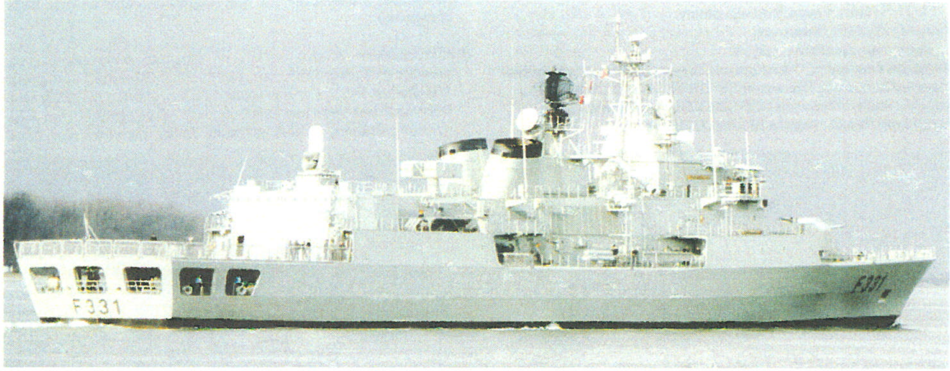
Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ①; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: Raytheon Sea Sparrow Mk 29 Mod 1 octuple launcher ②; RIM-7M; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg. Space left for VLS Sea Sparrow ③.
Guns: 1 Creusot-Loire 3.9 in *(100 mm)*/55 Mod 68 CADAM ④; 60 rds/min to 17 km *(9 n miles)* anti-surface; 8 km *(4.4 n miles)* anti-aircraft; weight of shell 13.5 kg.
1 General Electric/General Dynamics Vulcan Phalanx 20 mm Mk 15 Mod 11 ⑤; 6 barrels per mounting; 3,000 rds/min combined to 1.5 km.
2 Oerlikon 20 mm (on VLS deck) ⑥ can be carried.
Torpedoes: 6—324 mm US Mk 32 (2 triple) tubes ⑦. Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor Mk 36 SRBOC 6-barrelled chaff launchers ⑧. Sea Gnat.
SLQ-25 Nixie; towed torpedo decoy.
ESM/ECM: APECS II; intercept and jammer.
Combat data systems: Signaal SEWACO action data automation with STACOS tactical command; Link 11 and 14. Matra Marconi SCOT 3 SATCOM ⑨ (1 set between 3 ships).
Weapons control: SWG 1A(V) for SSM. Vesta Helo transponder with datalink for OTHT.
Radars: Air search: Signaal MW08 (derived from Smart 3D) ⑩; 3D; G-band.
Air/surface search: Signaal DA08 ⑪; F-band.
Navigation: Kelvin Hughes Type 1007; I-band.
Fire control: 2 Signaal STIR ⑫; I/J/K-band; range 140 km *(76 n miles)* for 1 m² target.
IFF Mk 12 Mod 4.
Sonars: Computing Devices (Canada) SQS-510(V); hull-mounted; active search and attack; medium frequency.

Helicopters: 2 Super Sea Lynx Mk 95 ⑬.

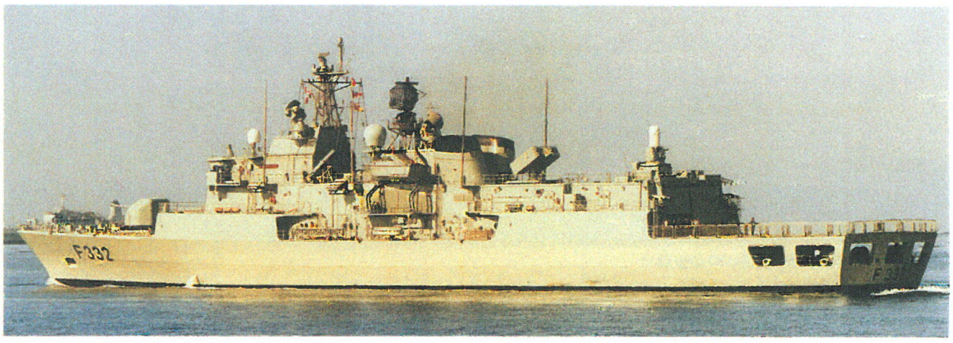
Programmes: The contract for all three was signed on 25 July 1986. These are Meko 200 type ordered from a consortium of builders. As well as Portugal, which provided 40 per cent of the cost, assistance was given by NATO with some missile, CIWS and torpedo systems being provided by the US.
Modernisation: F 330 completed six-month overhaul period at Arsenal do Alfeite in 2001. F 331 and F 332 are undergoing similar refits and full mid-life refits are planned in the medium term.



VASCO DA GAMA *(Scale 1 : 1,200), Ian Sturton* / 0567520



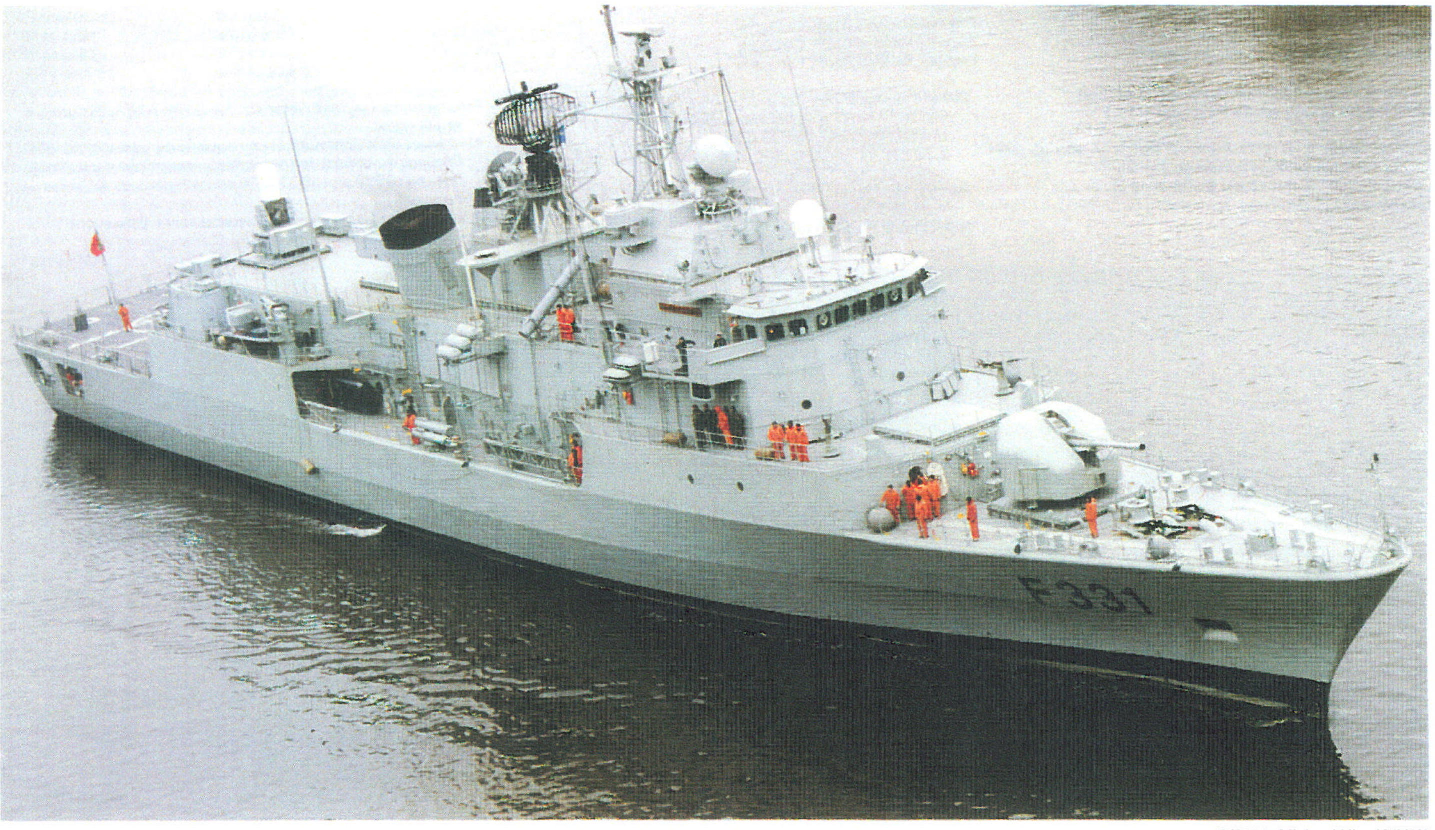
ALVARES CABRAL *3/2002, E & M Laursen* / 0534043



CORTE REAL *6/2001, John Brodie* / 0121386

Structure: All-steel construction. Stabilisers fitted. Full RAS facilities. Space has been left for a sonar towed array and for VLS Sea Sparrow.

Operational: Designed primarily as ASW ships. SCOT SATCOM rotated between the three ships. 20 mm guns can be mounted on the VLS deck. ***UPDATED***



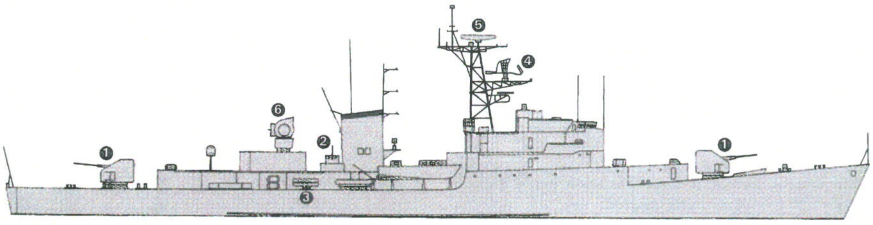
ALVARES CABRAL *2/2002, Michael Nitz* / 0534048

3 COMANDANTE JOÃO BELO CLASS (FF)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
COMANDANTE JOÃO BELO	F 480	At et Ch de Nantes	6 Sep 1965	22 Mar 1966	1 July 1967
COMANDANTE HERMENEGILDO CAPELO	F 481	At et Ch de Nantes	13 May 1966	29 Nov 1966	26 Apr 1968
COMANDANTE SACADURA CABRAL	F 483	At et Ch de Nantes	18 Aug 1967	15 Mar 1968	25 July 1969

Displacement, tons: 1,750 standard; 2,250 full load
Dimensions, feet (metres): 336.9 × 38.4 × 14.4 *(102.7 × 11.7 × 4.4)*
Main machinery: 4 SEMT-Pielstick 12 PC2.2 V 400 diesels; 16,000 hp(m) *(11.8 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 7,500 at 15 kt
Complement: 201 (15 officers)

Guns: 2 Creusot-Loire 3.9 in *(100 mm)*/55 Mod 1953 ❶; 60 rds/min to 17 km *(9 n miles)* anti-surface; 8 km *(4.4 n miles)* anti-aircraft; weight of shell 13.5 kg.
2 Bofors 40 mm/60 ❷; 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 0.89 kg.
Torpedoes: 6—324 mm Mk 32 Mod 5 (2 triple) tubes ❸; Honeywell Mk 46 Mod 5; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor Mk 36 SRBOC 6-barrelled chaff launchers.
SLQ-25 Nixie; towed torpedo decoy.
ESM: AR-700(V2); intercept.
Combat data systems: Link 11.
Weapons control: C T Analogique. Sagem DMA optical director.
Radars: Air search: Thomson-CSF DRBV 22A ❹; D-band.
Surface search: Thomson-CSF DRBV 50 ❺; G-band.
Navigation: Kelvin Hughes KH 1007; I-band.



COMANDANTE HERMENEGILDO CAPELO *(Scale 1 : 900), Ian Sturton* / 0121391

Fire control: Thomson-CSF DRBC 31D ❻; I-band.
Sonars: CDC SQS-510; hull-mounted; active search and attack; medium frequency.
Thomson Sintra DUBA 3A; hull-mounted; active search; high frequency.

Modernisation: Modernisation of external communications, sensors and electronics completed 1987-90. Chaff launchers installed in 1989. Further modernisation started in 1993. The hull sonar has been replaced, torpedo tubes updated, the A/S mortar removed, towed torpedo decoy installed and ESM equipment changed. F 481 completed in 1995, F 480 in 1996 and F 483 in 2000. A combat data system with Link 11 has been added, compatible with the 'Vasco da Gama' class. The plan to have one or both after guns replaced either by flight deck and hangar for helicopter or by SSM has been shelved, but X turret is removed.
Operational: Designed for tropical service. A fourth of class has been cannibalised for spares. Expected to remain in service until 2010.

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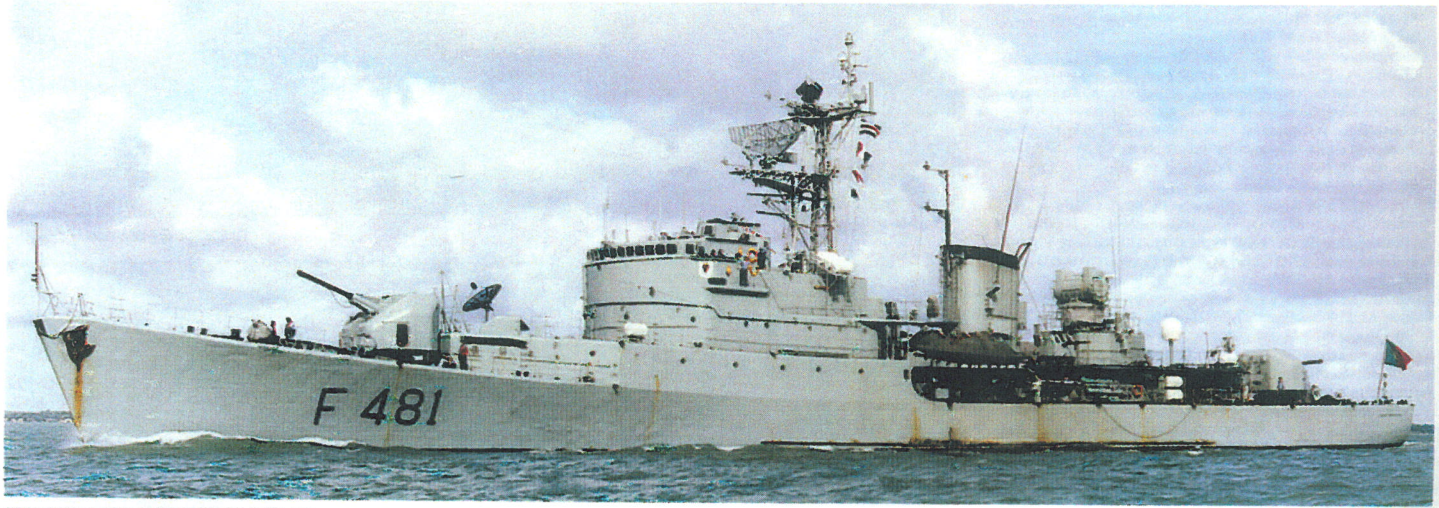

COMANDANTE HERMENEGILDO CAPELO *2/2000, J Mortimer* / 0105264

CORVETTES

3 BAPTISTA DE ANDRADE CLASS (FSH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
BAPTISTA DE ANDRADE	F 486	Empresa Nacional Bazán, Cartagena	1 Sep 1972	13 Mar 1973	19 Nov 1974
JOÃO ROBY	F 487	Empresa Nacional Bazán, Cartagena	1 Dec 1972	3 June 1973	18 Mar 1975
AFONSO CERQUEIRA	F 488	Empresa Nacional Bazán, Cartagena	10 Mar 1973	6 Oct 1973	26 June 1975

Displacement, tons: 1,203 standard; 1,380 full load
Dimensions, feet (metres): 277.5 × 33.8 × 10.2 *(84.6 × 10.3 × 3.1)*
Main machinery: 2 OEW Pielstick 12 PC2.2 V 400 diesels; 12,000 hp(m) *(8.82 MW)* sustained; 2 shafts
Speed, knots: 22. **Range, miles:** 5,900 at 18 kt
Complement: 71 (7 officers)

Guns: 1 Creusot-Loire 3.9 in *(100 mm)*/55 Mod 1968; 80 rds/min to 17 km *(9 n miles)* anti-surface; 8 km *(4.4 n miles)* anti-aircraft; weight of shell 13.5 kg.
2 Bofors 40 mm/70; 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 0.96 kg.
Radars: Navigation: 1 Racal Decca RM 316P and 1 KH 5000 Nucleos 2; I-band.
Helicopters: Platform only.

Programmes: Originally intended for South Africa. Reclassified as corvettes.
Modernisation: Communications equipment updated 1988-91. Previous modernisation programme was abandoned in 1998. Between 1999 and 2001 ASW and weapons control systems removed.
Operational: Class is used for Maritime Law Enforcement/SAR/Fishery Protection and for Humanitarian Operations.

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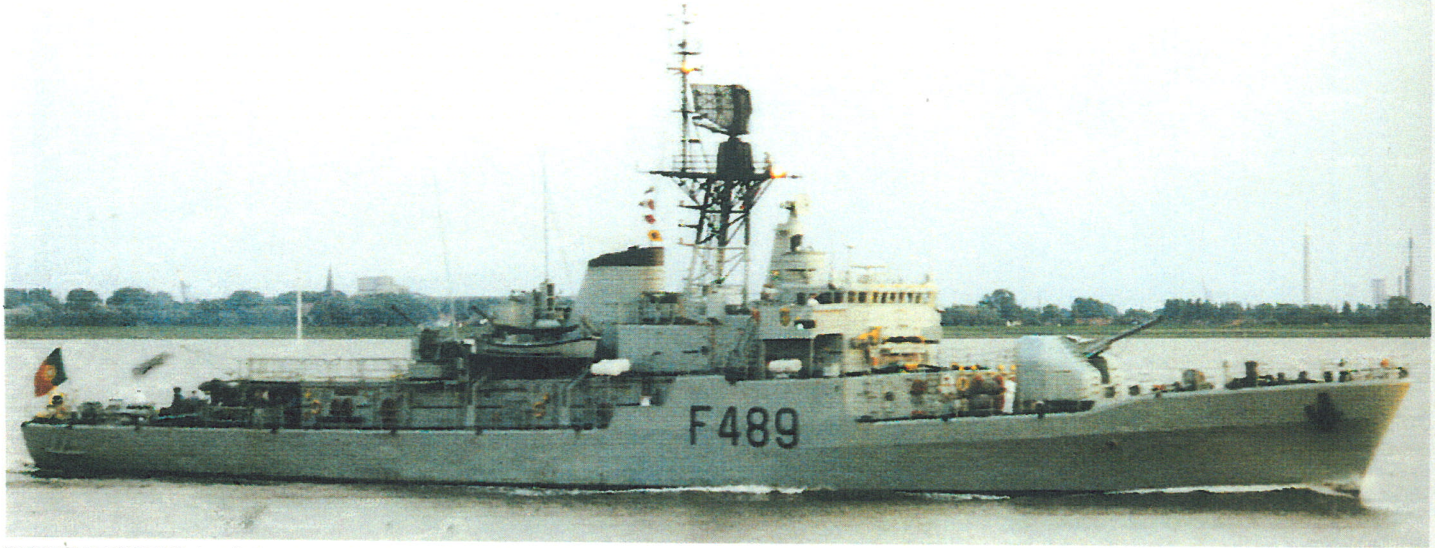

BAPTISTA DE ANDRADE class (before adaptation to Fishery Protection role) *8/1998, Winter & Findler* / 0052749

5 JOÃO COUTINHO CLASS (FSH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ANTONIO ENES	F 471	Empresa Nacional Bazán, Cartagena	10 Apr 1968	16 Aug 1969	18 June 1971
JOÃO COUTINHO	F 475	Blohm + Voss, Hamburg	24 Dec 1968	2 May 1969	28 Feb 1970
JACINTO CANDIDO	F 476	Blohm + Voss, Hamburg	10 Feb 1969	16 June 1969	29 May 1970
GENERAL PEREIRA D'EÇA	F 477	Blohm + Voss, Hamburg	21 Apr 1969	26 July 1969	10 Oct 1970
AUGUSTO DE CASTILHO	F 484	Empresa Nacional Bazán, Cartagena	15 Oct 1968	4 July 1969	14 Nov 1970

Displacement, tons: 1,203 standard; 1,380 full load
Dimensions, feet (metres): 277.5 × 33.8 × 10.8 *(84.6 × 10.3 × 3.3)*

Main machinery: 2 OEW Pielstick 12 PC2.2 V 400 diesels; 12,000 hp(m) *(8.82 MW)* sustained; 2 shafts
Speed, knots: 22. **Range, miles:** 5,900 at 18 kt

Complement: 70 (7 officers)

Guns: 2 US 3 in *(76 mm)*/50 (twin) Mk 33; 50 rds/min to 12.8 km *(7 n miles)*; weight of shell 6 kg.
2 Bofors 40 mm/60 (twin); 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 0.89 kg.
Weapons control: Mk 51 GFCS for 40 mm.
Radars: Air/surface search: Kelvin Hughes 1007; I-band.
Navigation: Racal Decca RM 1226C; I-band.

Helicopters: Platform only.

Programmes: Reclassified as corvettes.
Modernisation: A programme for this class to include SSM and PDMS has been shelved. In 1989-91 the main radar was updated and SATCOM (INMARSAT) installed. Also fitted with SIFICAP which is a Fishery Protection data exchange system by satellite to the main database ashore.
Operational: A/S equipment no longer operational and laid apart on shore. Crew reduced as a result.

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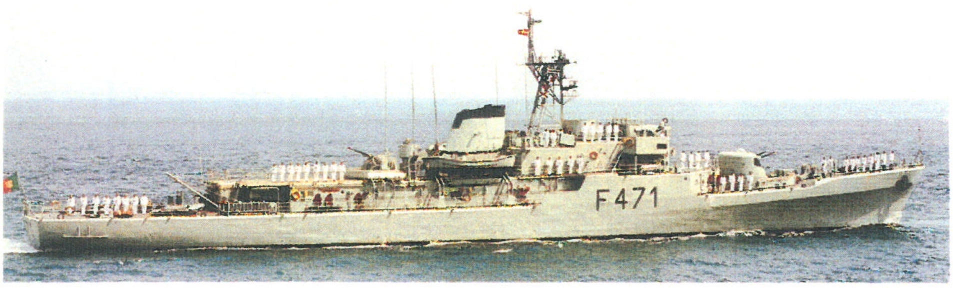
ANTONIO ENES *7/1994, van Ginderen Collection* / 0052750

SHIPBORNE AIRCRAFT

Numbers/Type: 5 Westland Super Navy Lynx Mk 95.
Operational speed: 125 kt *(231 km/h)*.
Service ceiling: 12,000 ft *(3,660 m)*.
Range: 320 n miles *(593 km)*.
Role/Weapon systems: Ordered 2 November 1990 for MEKO 200 frigates; two are updated HAS 3 and three were new aircraft, all delivered in August and November 1993. Two further aircraft may be acquired. Sensors: Bendix 1500B radar; Bendix AQS-18V dipping sonar; Racal RNS 252 datalink. Weapons: Mk 46 torpedoes.

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19202
MARINHA
SUPER LYNX *9/2002, H M Steele* / 0534127

LAND-BASED MARITIME AIRCRAFT

Notes: All Air Force manned.

Numbers/Type: 10 Aerospatiale SA 330C Puma.
Operational speed: 151 kt *(280 km/h)*.
Service ceiling: 15,090 ft *(4,600 m)*.
Range: 343 n miles *(635 km)*.
Role/Weapon systems: For SAR and surface search. Sensors: Omera search radar. Weapons: Unarmed except for pintle-mounted 12.7 mm machine guns.

UPDATED

PUMA *6/2002*, Adolfo Ortigueira Gil* / 0567521

Numbers/Type: 5/2 CASA C-212-200/C-212-300 Aviocar.
Operational speed: 190 kt *(353 km/h)*.
Service ceiling: 24,000 ft *(7,315 m)*.
Range: 1,650 n miles *(3,055 km)*.
Role/Weapon systems: The first five are for short-range SAR support and transport operations. The last pair were ordered in February 1993 for maritime patrol and fisheries surveillance off the Azores and Madeira. Sensors: Search radar and MAD. FLIR and datalink (last pair). Weapons: Unarmed.

VERIFIED

CASA 212 *6/2001, Adolfo Ortigueira Gil* / 0529552

Numbers/Type: 6 Lockheed P-3P Orion.
Operational speed: 410 kt *(760 km/h)*.
Service ceiling: 28,300 ft *(8,625 m)*.
Range: 4,000 n miles *(7,410 km)*.
Role/Weapon systems: Long-range surveillance and ASW patrol aircraft; acquired with NATO funding from RAAF update programme and modernised by Lockheed to 3P standard starting in 1987. Sensors: APS-134/137 radar, ASQ-81 MAD, AQS-901 sonobuoy processor, AQS-114 computer, IFF, ALR-66 ECM/ESM. Weapons: ASW; eight Mk 46 torpedoes, depth bombs or mines; ASV; 10 underwing stations for Harpoon. AGM 65 Maverick in due course.

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P-3P *3/2001*, Adolfo Ortigueira Gil* / 0567522

PATROL FORCES

Notes: Twelve 16 m fast reaction craft capable of 45 kt ordered from Conafi in 1998. Delivered between September 1999 and September 2001 to Guarda Nacional Republicana for customs, immigration and drug enforcement duties.

0 + 2 (10) NPO 2000 CLASS (PSOH)

Displacement, tons: 1,500 full load
Dimensions, feet (metres): 261.8 × 42.3 × ? *(79.8 × 21.9 × ?)*
Main machinery: 2 diesels
Speed, knots: 20. **Range, miles:** 5,000 at 15 kt
Complement: 35
Guns: 1—40 mm
Weapons control: Mk 51 GFCS or Optronic director

Helicopters: Platform for one light

Comment: Contract on 15 October 2002 with Viana do Castelo Shipyards for two Offshore Patrol vessels. Construction started in 2003 with delivery of the first of class planned in 2005 and of the second in 2006. These ships are designed for EEZ patrol duties and a further eight are planned to be delivered by 2015 to replace the corvettes and 'Cacine' class. Two further modified vessels, a Buoy Tender and a Pollution Control Ship, are included in the programme.

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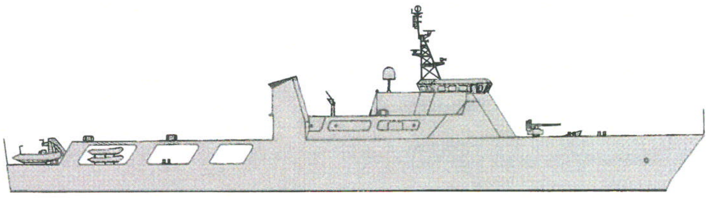
NPO 2000 *(not to scale), Ian Sturton* / 0081605

4 CACINE CLASS (LARGE PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Commissioned*
CACINE	P 1140	Arsenal do Alfeite	May 1969
QUANZA	P 1144	Estaleiros Navais do Mondego	May 1969
ZAIRE	P 1146	Estaleiros Navais do Mondego	Nov 1970
SAVE	P 1161	Arsenal do Alfeite	May 1973

Displacement, tons: 292.5 standard; 310 full load
Dimensions, feet (metres): 144 × 25.2 × 7.1 *(44 × 7.7 × 2.2)*
Main machinery: 2 MTU 12V 538 TB80 diesels; 3,750 hp(m) *(2.76 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 4,400 at 12 kt
Complement: 33 (3 officers)
Guns: 1 Bofors 40 mm/60. 1 Oerlikon 20 mm/65.
Radars: Surface search: Kelvin Hughes Type 1007; I/J-band.

Comment: Originally mounted a second Bofors aft but most have been removed as has the 37 mm rocket launcher. Have SIFICAP satellite data handling system for Fishery Protection duties. An RIB is carried. Two of the class are based at Madeira on a two month rotational basis. Re-engined in 1992-94. To be replaced by NPO 2000 class from 2005.

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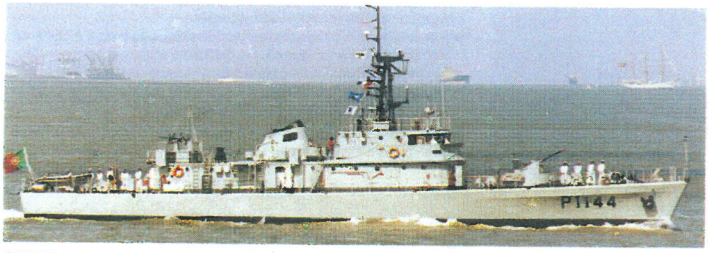
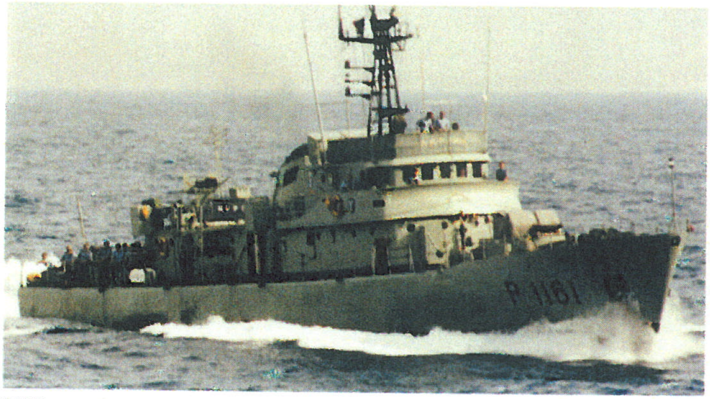


QUANZA *6/1998, M Verschaeve* / 0052752



SAVE *3/2000* / 0105266

5 ARGOS CLASS (RIVER PATROL CRAFT) (PBR)

Name	*No*	*Builders*	*Commissioned*
ARGOS	P 1150	Arsenal do Alfeite	2 July 1991
DRAGÃO	P 1151	Arsenal do Alfeite	18 Oct 1991
ESCORPIÃO	P 1152	Arsenal do Alfeite	26 Nov 1991
CASSIOPEIA	P 1153	Conafi	11 Nov 1991
HIDRA	P 1154	Conafi	18 Dec 1991

Displacement, tons: 94 full load
Dimensions, feet (metres): 89.2 × 19.4 × 4.6 *(27.2 × 5.9 × 1.4)*
Main machinery: 2 MTU 12V 396 TE84 diesels (P 1150-1154); 3,700 hp(m) *(2.73 MW)* sustained; 2 shafts
2 Cummins KTA-50-M2 (P 1155-1158); 3,600 hp(m) *(2.64 MW)* sustained; 2 shafts
Speed, knots: 26. **Range, miles:** 1,350 at 15 kt
Complement: 12 (1 officer)
Guns: 2—12.7 mm MGs (1150-1154).
Radars: Navigation: Furuno 1505 DA or Furuno FR 1411; I-band.

Comment: First five ordered in 1989 and 50 per cent funded by the EC. Of GRP construction, capable of full speed operation up to Sea State 3. Carries a RIB with a 37 hp outboard engine. The boat is recoverable via a stern well at up to 10 kt.

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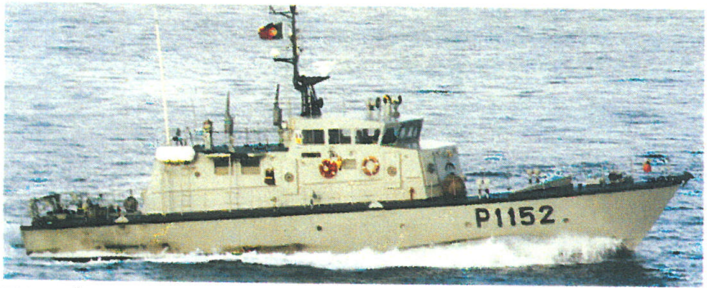

ESCORPIÃO *6/2002** / 0567523

2 ALBATROZ CLASS (RIVER PATROL CRAFT) (PBR)

Name	*No*	*Builders*	*Commissioned*
AGUIA	P 1165	Arsenal do Alfeite	28 Feb 1975
CISNE	P 1167	Arsenal do Alfeite	31 Mar 1976

Displacement, tons: 45 full load
Dimensions, feet (metres): 77.4 × 18.4 × 5.2 *(23.6 × 5.6 × 1.6)*
Main machinery: 2 Cummins diesels; 1,100 hp *(820 kW)*; 2 shafts
Speed, knots: 20. **Range, miles:** 2,500 at 12 kt
Complement: 8 (1 officer)
Guns: 1 Oerlikon 20 mm/65. 2—12.7 mm MGs.
Radars: Surface search: Decca RM 316P; I-band.

Comment: One other is used for harbour patrol duties. Two transferred to East Timor in 2001. Replacement of these craft is under consideration.

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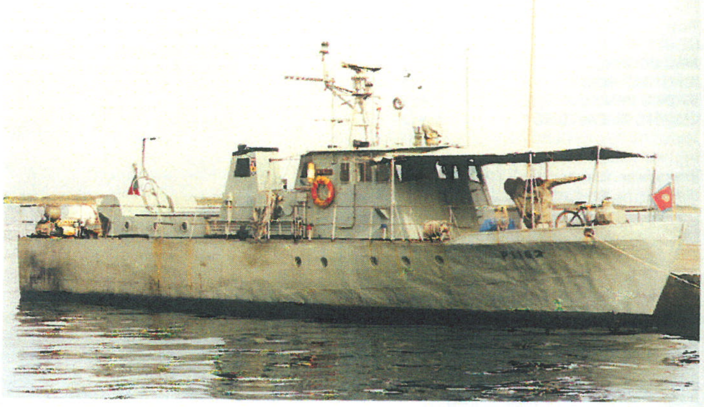

ALBATROZ CLASS *1/2001, van Ginderen Collection* / 0121389

4 CENTAURO CLASS (RIVER PATROL CRAFT) (PBR)

Name	*No*	*Builders*	*Commissioned*
CENTAURO	P 1155	Arsenal do Alfeite	20 Mar 2000
ORION	P 1156	Arsenal do Alfeite	27 Mar 2001
PÉGASO	P 1157	Estaleiros Navais do Mondego	27 Mar 2001
SAGITARIO	P 1158	Estaleiros Navais do Mondego	27 Mar 2001

Displacement, tons: 89 full load
Dimensions, feet (metres): 93.2 × 19.5 × 4.6 *(28.4 × 5.95 × 1.4)*
Main machinery: 2 Cummins KTA-50-M2 diesels; 3,600 hp(m) *(2.64 MW)*; 2 shafts
Speed, knots: 26. **Range, miles:** 640 at 20 kt
Complement: 8 (1 officer)
Guns: 1 Oerlikon 20 mm/65.
Radars: 1 Furuno FCR-1411 MK3.

Comment: Similar to 'Argos' class but of aluminium hull. Capable of full speed operation up to Sea State 3. Carries a semi-rigid boat with a 50 hp outboard engine. The boat is recoverable via a stern well at up to 10 kt.

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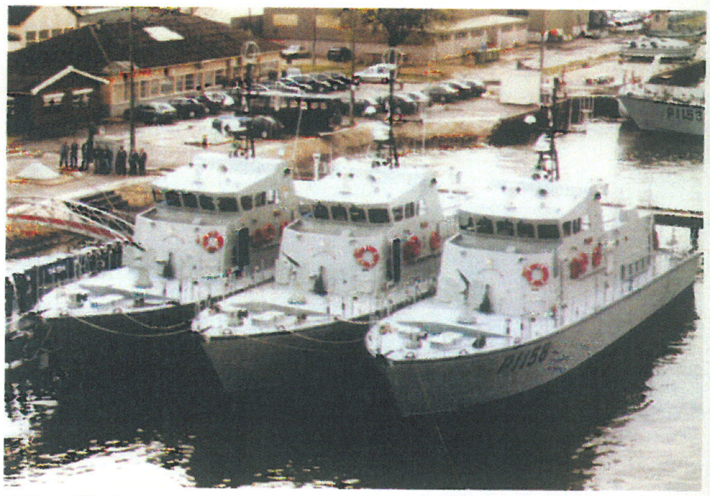

ORION, PÉGASO and SAGITARIO *3/2001, A Campanera i Rovira* / 0126192

1 RIO MINHO CLASS (RIVER PATROL CRAFT) (PBR)

Name	*No*	*Builders*	*Commissioned*
RIO MINHO	P 370	Arsenal do Alfeite	1 Aug 1991

Displacement, tons: 72 full load
Dimensions, feet (metres): 73.5 × 19.7 × 2.6 *(22.4 × 6 × 0.8)*
Main machinery: 2 KHD-Deutz diesels; 664 hp(m) *(488 kW)*; 2 Schottel pumpjets
Speed, knots: 9.5. **Range, miles:** 420 at 7 kt
Complement: 8 (1 officer)
Guns: 1—7.62 mm MG.
Radars: Navigation: Furuno FR 1505DA; I-band.

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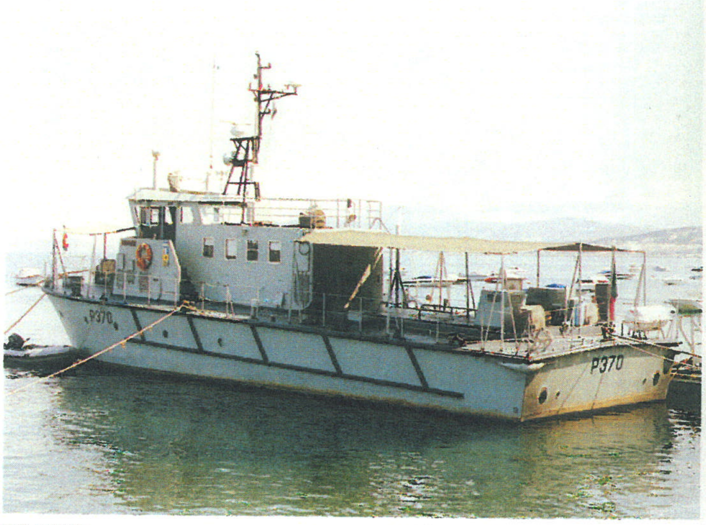

RIO MINHO *8/1994, van Ginderen Collection* / 0081609

AMPHIBIOUS FORCES

Notes: A multipurpose Logistic Ship (LPD type) is a high priority. Contract with Viana do Castelo Shipyards may take place in 2004.

1 BOMBARDA CLASS (LCU)

Name	*No*	*Builders*	*Commissioned*
BACAMARTE	LDG 203	Arsenal do Alfeite	Dec 1985

Displacement, tons: 652 full load
Dimensions, feet (metres): 184.3 × 38.7 × 6.2 *(56.2 × 11.8 × 1.9)*
Main machinery: 2 MTU MB diesels; 910 hp(m) *(669 kW)*; 2 shafts
Speed, knots: 9.5. **Range, miles:** 2,600 at 9 kt
Complement: 21 (3 officers)
Military lift: 350 tons
Guns: 2 Oerlikon 20 mm.
Radars: Navigation: Decca RM 316P; I-band.

Comment: Similar to French EDIC.

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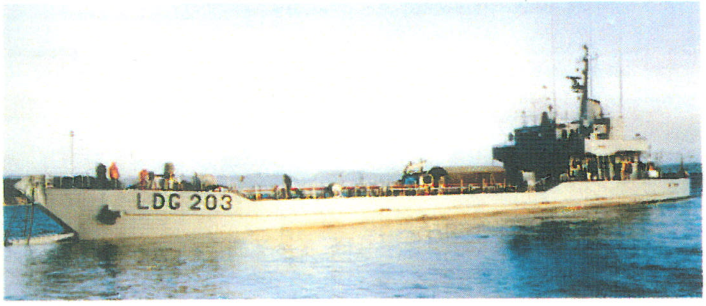

BACAMARTE *2000, Portuguese Navy* / 0105267

SURVEY SHIPS

2 STALWART CLASS (AGS)

Name	*No*	*Builders*	*Commissioned*
D. CARLOS I (ex-*Audacious*, ex-*Dauntless*)	A 522 (ex-T-AGOS 11)	Tacoma Boat	18 June 1989
ALMIRANTE GAGO COUTINHO (ex-*Assurance*)	A 523 (ex-T-AGOS 5)	Tacoma Boat	1 May 1985

Displacement, tons: 2,285 full load
Dimensions, feet (metres): 224 × 43 × 15.9 *(68.3 × 13.1 × 4.6)*
Main machinery: Diesel-electric; 4 Caterpillar D 398B diesel generators; 3,200 hp *(2.39 MW)*; 2 GE motors; 1,600 hp *(1.2 MW)*; 2 shafts; bow thruster; 550 hp *(410 kW)*
Speed, knots: 11. **Range, miles:** 4,000 at 11 kt; 6,450 at 3 kt
Complement: 31 (6 officers) plus 15 scientists
Radars: Navigation: 2 Raytheon; I-band.

Comment: Paid off from USN in November 1995. First one acquired 21 July 1996. Refitted to serve as a hydrographic ship, operating predominantly off the west coast of Africa. Recommissioned 9 December 1996. A second of class acquired by gift 30 September 1999, has been similarly refitted and recommissioned 26 January 2000.

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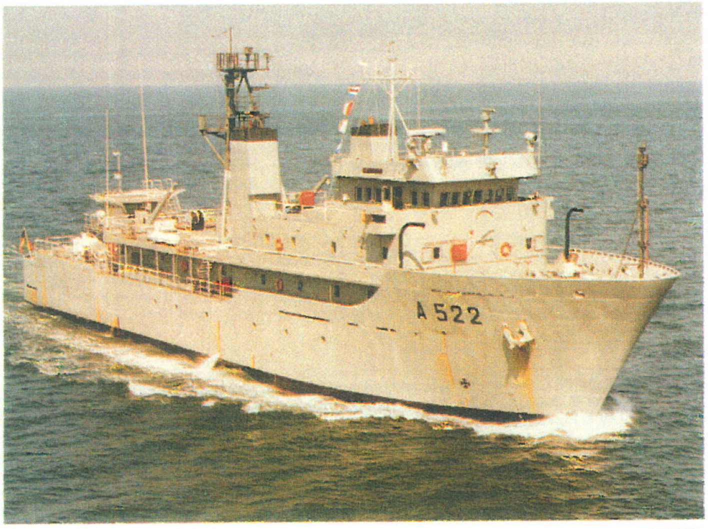

D. CARLOS I *8/1997, Portuguese Navy* / 0012931

2 ANDROMEDA CLASS (AGSC)

Name	*No*	*Builders*	*Commissioned*
ANDROMEDA	A 5203	Arsenal do Alfeite	1 Feb 1987
AURIGA	A 5205	Arsenal do Alfeite	1 July 1987

Displacement, tons: 245 full load
Dimensions, feet (metres): 103.3 × 25.4 × 8.2 *(31.5 × 7.7 × 2.5)*
Main machinery: 1 MTU 12V 396 TC62 diesel; 1,200 hp(m) *(880 kW)* sustained; 1 shaft
Speed, knots: 12. **Range, miles:** 1,980 at 10 kt
Complement: 17 (3 officers)
Radars: Navigation: Decca RM 914C; I-band.

Comment: Both ordered in January 1984. *Auriga* has a research submarine ROV Phantom S2 and a Klein side scan sonar. Mostly used for oceanography.

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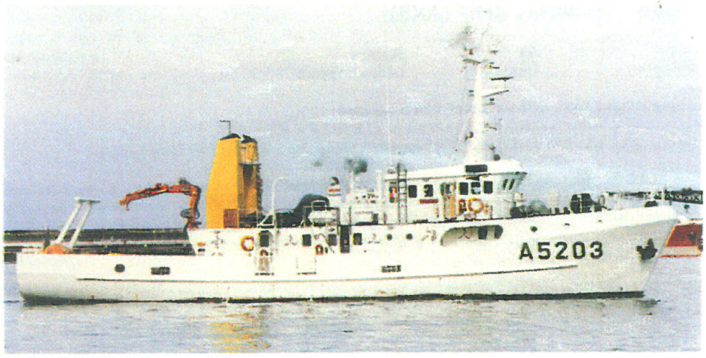

ANDROMEDA *8/1997, van Ginderen Collection* / 0012932

3 SURVEY CRAFT (YGS)

CORAL UAM 801
ATLANTA (ex-*Hidra*) UAM 802
FISALIA UAM 805

Comment: Craft are of 36 tons launched in 1980.

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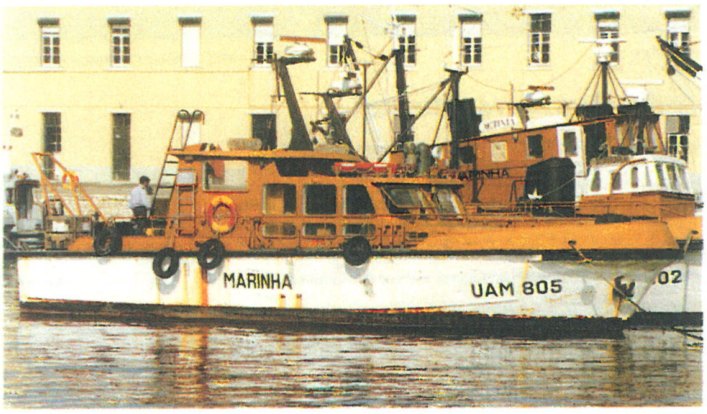

FISALIA *3/1992, van Ginderen Collection* / 0081611

TRAINING SHIPS

1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Commissioned*
SAGRES (ex-*Guanabara*, ex-*Albert Leo Schlageter*)	A 520	Blohm + Voss, Hamburg	10 Feb 1938

Displacement, tons: 1,725 standard; 1,940 full load
Dimensions, feet (metres): 231 wl; 295.2 oa × 39.4 × 17 *(70.4; 90 × 12 × 5.2)*
Main machinery: 2 MTU 12V 183 TE92 auxiliary diesels; 1 shaft
Speed, knots: 10.5. **Range, miles:** 5,450 at 7.5 kt on diesel
Complement: 162 (12 officers)
Radars: Navigation: 1 Racal Decca and 1 KH 1500 Nucleos 2; I-band.

Comment: Former German sail training ship launched 30 October 1937. Sister of US Coast Guard training ship *Eagle* (ex-German *Horst Wessel*) and Soviet *Tovarisch* (ex-German *Gorch Fock*). Taken by the USA as a reparation after the Second World War in 1945 and sold to Brazil in 1948. Purchased from Brazil and commissioned in the Portuguese Navy on 2 February 1962 at Rio de Janeiro and renamed *Sagres*. Sail area, 20,793 sq ft. Height of main mast, 142 ft. Phased refits 1987-88 and again in 1991-92 which included new engines, improved accommodation, hydraulic crane and updated navigation equipment.

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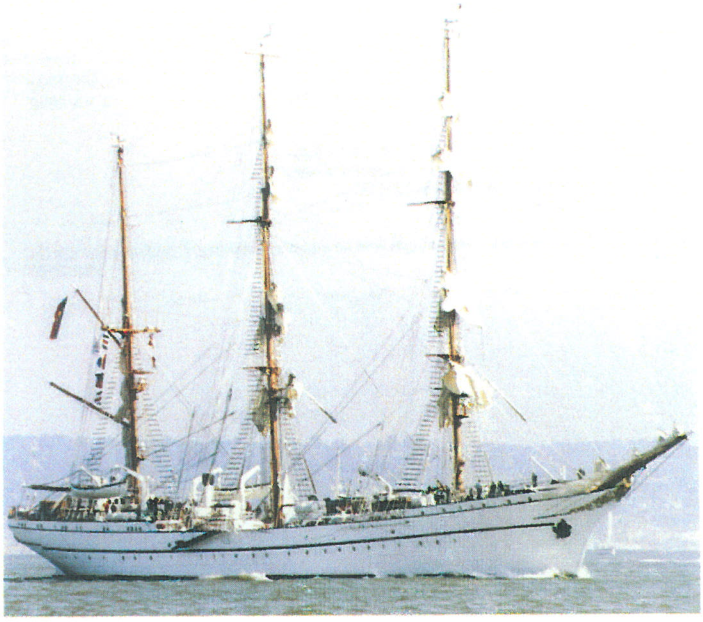

SAGRES *7/2003*, B Prézelin* / 0567524

1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Commissioned*
CREOULA	UAM 201	Lisbon Shipyard	1937

Displacement, tons: 818 standard; 1,055 full load
Dimensions, feet (metres): 221.1 × 32.5 × 13.8 *(67.4 × 9.9 × 4.2)*
Main machinery: 1 MTU 8V 183 TE92 auxiliary diesel; 665 hp(m) *(490 kW)*; 1 shaft

Comment: Ex-deep sea sail fishing ship used off the coast of Newfoundland for 36 years. Bought by Fishing Department in 1976 to turn into a museum ship but because she was still seaworthy it was decided to convert her to a training ship. Recommissioned in the Navy in 1987. Refit completed in 1992 including a new engine and improved accommodation. A life-extension refit is under consideration.
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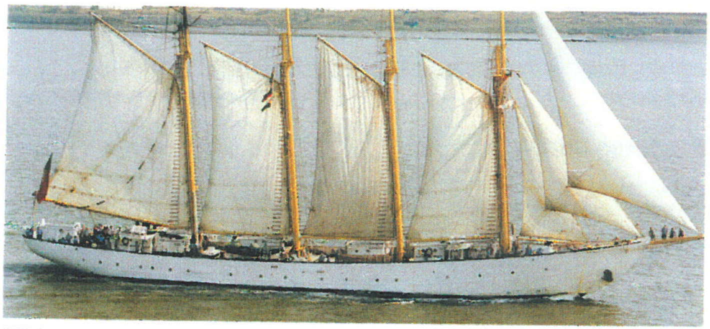

CREOULA *9/1991, van Ginderen Collection* / 0081613

2 SAIL TRAINING YACHTS (AXL)

VEGA (ex-*Arreda*) A 5201 **POLAR** (ex-*Anne Linde*) A 5204

Displacement, tons: 70 (60, *Vega*)
Dimensions, feet (metres): 75 × 16 × 8.2 *(22.9 × 4.9 × 2.5) (Polar)*
65 × 14.1 × 8.2 *(19.8 × 4.3 × 2.5) (Vega)*
Radars: Navigation: Raytheon; I-band.

Comment: Sail numbers are displayed. *Vega* is P-165 and *Polar* is P-551.
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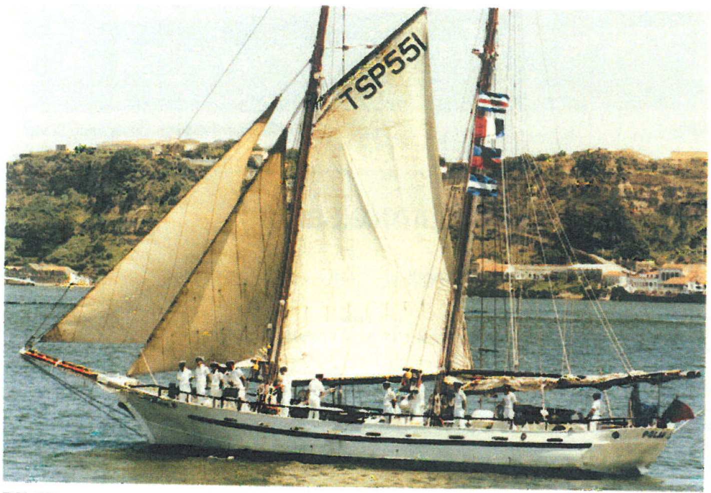

POLAR *6/1998, G Toremans* / 0052754

AUXILIARIES

Notes: Two craft are employed on Pollution Control tasks. *Vazante* (UAM 687) is 14 tons and *Enchente* (UAM 688) is 65 tons. *Barrocas* (UAM 854) is an accommodation barge. *Marateca* (UAM 304) and *Meuro* (UAM 305) are fuel lighters.

1 BUOY TENDER (ABU)

Name	*No*	*Builders*	*Commissioned*
SCHULTZ XAVIER	A 521	Alfeite Naval Yard	14 July 1972

Displacement, tons: 900 full load
Dimensions, feet (metres): 184 × 33 × 12.5 *(56 × 10 × 3.8)*
Main machinery: 2 diesels; 2,400 hp(m) *(1.76 MW)*; 2 shafts
Speed, knots: 14.5. **Range, miles:** 3,000 at 12.5 kt
Complement: 54 (4 officers)

Comment: Used for servicing navigational aids and as an occasional tug. A replacement ship is projected.
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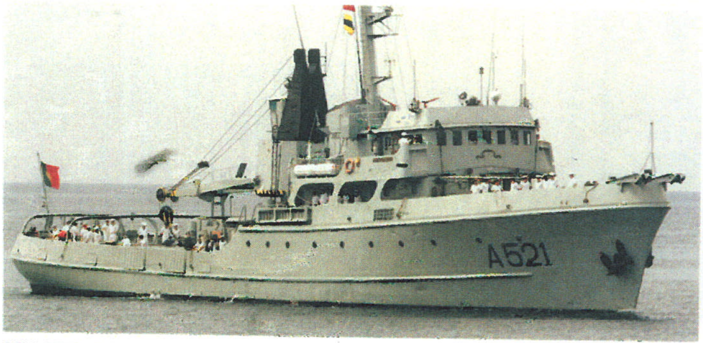

SCHULTZ XAVIER *5/1998, Diego Quevedo* / 0052756

1 ROVER CLASS (REPLENISHMENT TANKER) (AORLH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
BÉRRIO (ex-*Blue Rover*)	A 5210 (ex-A 270)	Swan Hunter	11 Nov 1969	15 July 1970

Displacement, tons: 4,700 light; 11,522 full load
Dimensions, feet (metres): 461 × 63 × 24 *(140.6 × 19.2 × 7.3)*
Main machinery: 2 SEMT-Pielstick 16 PA4 185 diesels; 15,360 hp(m) *(11.46 MW)*; 1 shaft; Kamewa cp prop; bow thruster
Speed, knots: 19. **Range, miles:** 15,000 at 15 kt
Complement: 54 (7 officers)
Cargo capacity: 6,600 tons fuel
Guns: 2 Oerlikon 20 mm.
Countermeasures: Decoys: 2 Vickers Corvus launchers. 2 Plessey Shield launchers.
1 Graseby Type 182; towed torpedo decoy.
Radars: Navigation: Kelvin Hughes Type 1006; I-band.
Helicopters: Platform for 1 medium.

Comment: Transferred from UK and recommissioned 31 March 1993. Small fleet tanker designed to replenish oil and aviation fuel, fresh water, limited dry cargo and refrigerated stores under all conditions while under way. Full refit in 1990-91 gave a service life expectancy until about 2004 and a further refit is under consideration to prolong life to 2010. No hangar but helicopter landing platform is served by a stores lift, to enable stores to be transferred at sea by 'vertical lift'. Capable of HIFR. Can pump fuel at 600 m³/h. Others of the class in service in Indonesia and the UK.
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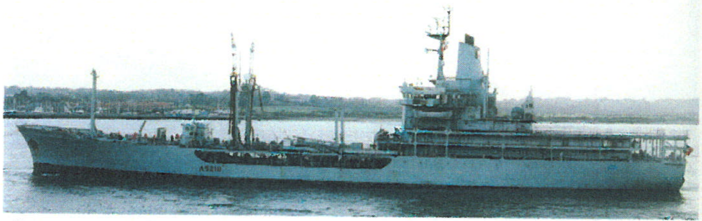

BÉRRIO *4/2000, Maritime Photographic* / 0105268

1 BUOY TENDER (ABU)

Name	*No*	*Builders*	*Commissioned*
GUIA	UAM 676	S Jacinto, Aveiro	30 Jan 1985

Displacement, tons: 70 full load
Dimensions, feet (metres): 72.2 × 25.9 × 7.2 *(22 × 7.9 × 2.2)*
Main machinery: 1 Deutz MWM SBA6M816 diesel; 465 hp(m) *(342 kW)* sustained; 1 Schottel Navigator prop
Speed, knots: 8.5 (3.5 on auxiliary engine)
Complement: 6

Comment: Belongs to the Lighthouse Service.
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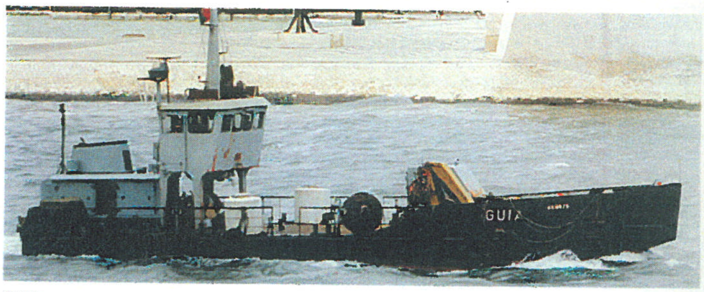

GUIA *5/1993, van Ginderen Collection* / 0081614

8 CALMARIA CLASS (HARBOUR PATROL CRAFT) (YP)

CALMARIA UAM 642
CIRRO UAM 643
VENDAVAL UAM 644
MONÇÃO UAM 645
SUÃO UAM 646
MACAREU UAM 647
PREIA-MAR UAM 648
BAIXA-MAR UAM 649

Displacement, tons: 12 full load
Dimensions, feet (metres): 39 × 12.5 × 2.3 *(11.9 × 3.8 × 0.7)*
Main machinery: 2 Bazán MAN 2866 LXE diesels; 881 hp(m) *(648 kW)*; 2 water-jets
Speed, knots: 32. **Range, miles:** 275 at 20 kt
Complement: 3
Guns: 1—7.62 mm MG.
Radars: Surface search: Furuno 1830; I-band.

Comment: Harbour patrol craft similar to Spanish Guardia Civil del Mar Saetta II craft. Ordered from Bazán, Cadiz on 8 January 1993. First pair completed 30 November 1993, third one on 18 January 1994. Remainder delivered between August and December 1994. GRP hulls.
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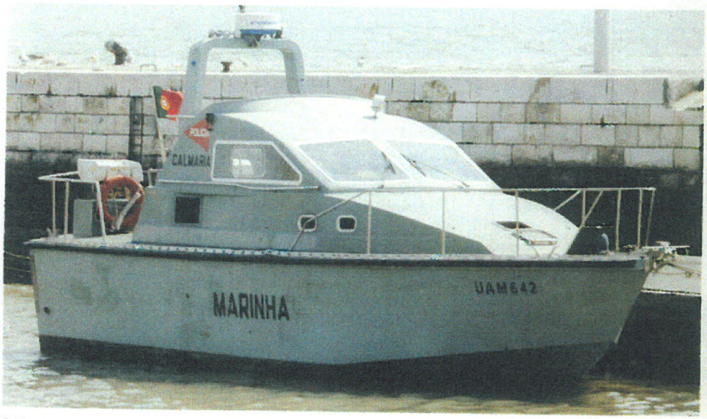
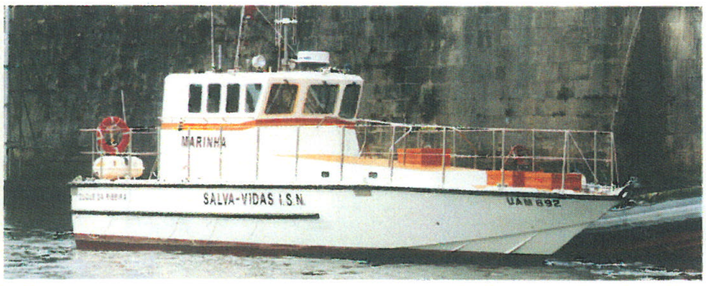


CALMARIA *3/2002, Diego Quevedo* / 0534047

56 MISCELLANEOUS SERVICE CRAFT (YAG)

UAM 650-652
UAM 655-675
UAM 677-679
UAM 681-682
UAM 685
UAM 689-696
UAM 780
UAM 831
UAM 851-853
UAM 901
UAM 907-916

Displacement, tons: 11.12 full load
Dimensions, feet (metres): 44.3 × 12.5 × 6.4 *(13.5 × 3.8 × 1.95)*



UAM 692 *9/1998, Schaeffer/Marsan* / 0081616

Main machinery: 2 Caterpillar 3208 DITA diesels; 340 hp; 2 shafts
Speed, knots: 18. **Range, miles:** 150 at 12 kt

Comment: Details are for UAM 689-696, Rodman SAR craft commissioned 1997-2000. The remaining craft are personnel and other service craft.

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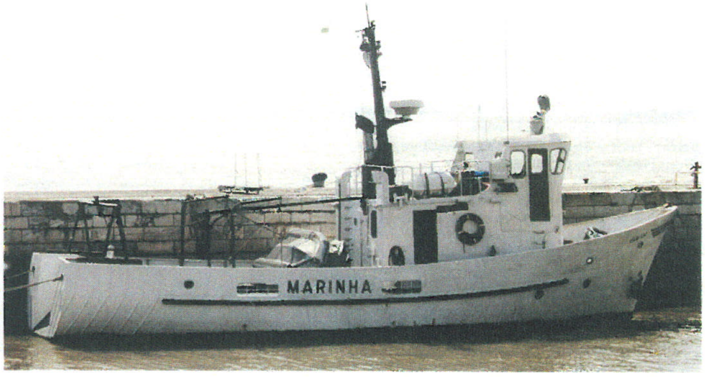


UAM 852 *3/2002, Diego Quevedo* / 0534049

Qatar

Country Overview

Formerly a British protectorate from 1916, Qatar gained its independence in 1971. Situated on the eastern side of the Arabian Peninsula, it occupies the Qatar Peninsula which has a 304 n mile coastline with the Gulf. With an area of 4,416 square miles, it is bordered to the south by Saudi Arabia and the United Arab Emirates. The sovereignty of the Hawar islands is disputed with Bahrain as is their joint maritime boundary. The capital, largest city and principal port is Doha. Territorial seas (12 n miles) are claimed. An EEZ (200 n miles) has been claimed but the limits are not defined.

Headquarters Appointments

Commander Naval Force:
Brigadier Said Muhammad Al Sowaidi

Personnel

(a) 2004: 1,800 officers and men (including Marine Police)
(b) Voluntary service

Bases

Doha (main); Halul Island (secondary)

Coast Defence

Two truck-mounted batteries of Exocet MM 40 quad launchers.

Prefix to Ships' Names

QENS (Qatar Emiri Navy)

PATROL FORCES

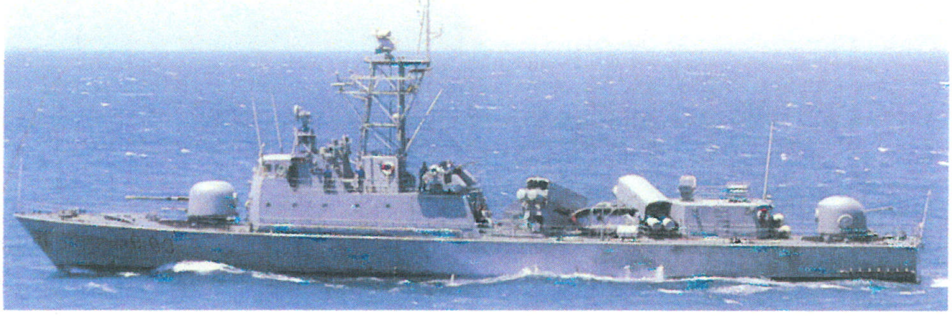
Notes: A requirement for two 49 m patrol craft has been reported.

3 DAMSAH (COMBATTANTE III M) CLASS (FAST ATTACK CRAFT—MISSILE) (PGGF)

Name	*No*	*Builders*	*Launched*	*Commissioned*
DAMSAH	Q 01	CMN, Cherbourg	17 June 1982	10 Nov 1982
AL GHARIYAH	Q 02	CMN, Cherbourg	23 Sep 1982	10 Feb 1983
RBIGAH	Q 03	CMN, Cherbourg	22 Dec 1982	11 May 1983

Displacement, tons: 345 standard; 395 full load
Dimensions, feet (metres): 183.7 × 26.9 × 7.2 *(56 × 8.2 × 2.2)*
Main machinery: 4 MTU 20V 538 TB93 diesels; 18,740 hp(m) *(13.8 MW)* sustained; 4 shafts
Speed, knots: 38.5. **Range, miles:** 2,000 at 15 kt
Complement: 41 (6 officers)

Missiles: SSM: 8 Aerospatiale MM 40 Exocet; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 1 OTO Melara 3 in *(76 mm)*/62; 60 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Breda 40 mm/70 (twin); 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
4 Oerlikon 30 mm/75 (2 twin); 650 rds/min to 10 km *(5.5 n miles)*.
Countermeasures: Decoys: CSEE Dagaie trainable single launcher; 6 containers; IR flares and chaff; H/J-band.
ESM/ECM: Racal Cutlass/Cygnus.
Weapons control: Vega system. 2 CSEE Naja optical directors.
Radars: Surface search: Thomson-CSF Triton; G-band.



RBIGAH *7/2001, Ships of the World* / 0121396

Navigation: Racal Decca 1226; I-band.
Fire control: Thomson-CSF Castor II; I/J-band; range 15 km *(8 n miles)* for 1 m² target.

Programmes: Ordered in 1980. All arrived at Doha July 1983. All refitted in 1996/98.

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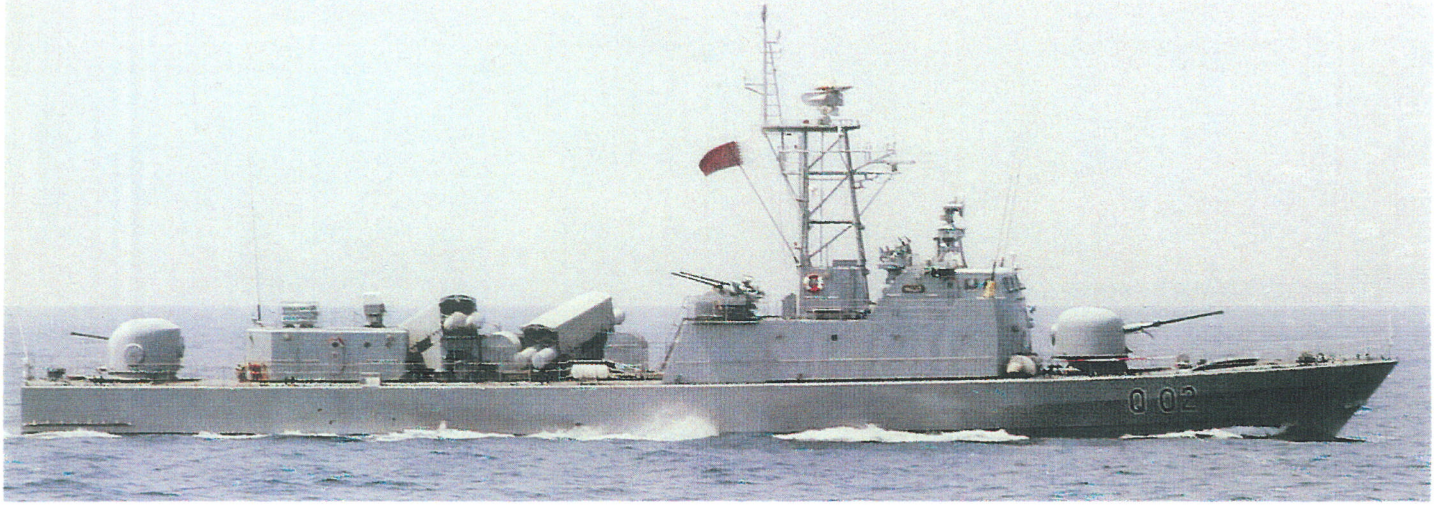

AL GHARIYAH *10/2001* / 0121393

4 BARZAN (VITA) CLASS (PGGFM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
BARZAN	Q04	Vosper Thornycroft	Feb 1994	1 Apr 1995	9 May 1996
HUWAR	Q05	Vosper Thornycroft	Aug 1994	15 July 1995	10 June 1996
AL UDEID	Q06	Vosper Thornycroft	Mar 1995	21 Mar 1996	16 Dec 1996
AL DEEBEL	Q07	Vosper Thornycroft	Aug 1995	31 Aug 1996	3 July 1997

Displacement, tons: 376 full load
Dimensions, feet (metres): 185.7 × 29.5 × 8.2 *(56.3 × 9 × 2.5)*
Main machinery: 4 MTU 20V 538 TB93 diesels; 18,740 hp(m) *(13.8 MW)* sustained; 4 shafts
Speed, knots: 35. **Range, miles:** 1,800 at 12 kt
Complement: 35 (7 officers)

Missiles: SSM: 8 Aerospatiale MM 40 Exocet (Block II) ❶; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: Matra Sadral sextuple launcher for Mistral ❷; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg.
Guns: 1 OTO Melara 76 mm/62 Super Rapid ❸; 120 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
1 Signaal Goalkeeper 30 mm ❹; 7 barrels; 4,200 rds/min combined to 2 km. 2—12.7 mm MGs.
Countermeasures: Decoys: CSEE Dagaie Mk 2 ❺ for chaff and IR flares.
ESM: Thomson-CSF DR 3000S ❻; intercept.
ECM: Dassault Salamandre ARBB 33 ❼; jammer.
Combat data systems: Signaal SEWACO FD with Thomson-CSF TACTICOS; Link Y.
Weapons control: Signaal STING optronic director. Signaal IRSCAN electro-optical tracker ❽.
Radars: Air/surface search; Thomson-CSF MRR ❾; G-band.
Navigation: Kelvin Hughes 1007 ❿; I-band.
Fire control: Signaal STING ⓫; I/J-band.

Programmes: Order announced on 4 June 1992 by Vosper Thornycroft. First steel cut 20 July 1993.
Structure: Vita design derivative based on the hull used for Oman and Kenya in the 1980s. Steel hull and aluminium superstructure. CSEE Sidewind EW management system is installed and a Racal Thorn data distribution system is used. Baffles have been added around the ECM aerials to prevent mutual interference with other sensors. An advanced machinery control and surveillance system allows one-man operation of main propulsion, electrical generation and auxiliary systems from the bridge. The bridge staff are also able to monitor the state of all compartments for damage control purposes.
Operational: First pair arrived in the Gulf in August 1997, second pair in May 1998. All of the class carry 40 kt RIBs with twin 60 hp outboards.

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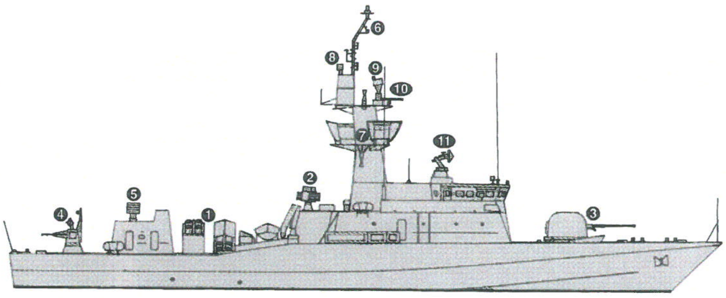

BARZAN

(Scale 1 : 600), Ian Sturton / 0012934

AL DEEBEL
10/2000 / 0121394

AL DEEBEL

7/2001, Ships of the World / 0121395

3 DAMEN POLYCAT 1450 CLASS (COASTAL PATROL CRAFT) (PB)

Q 31-36 series

Displacement, tons: 18 full load
Dimensions, feet (metres): 47.6 × 15.4 × 4.9 *(14.5 × 4.7 × 2.1)*
Main machinery: 2 Detroit 12V-71TA diesels; 840 hp *(627 kW)* sustained; 2 shafts
Speed, knots: 26
Complement: 11
Guns: 1 Oerlikon 20 mm.
Radars: Navigation: Racal Decca; I-band.

Comment: Three remain of six delivered February-May 1980.

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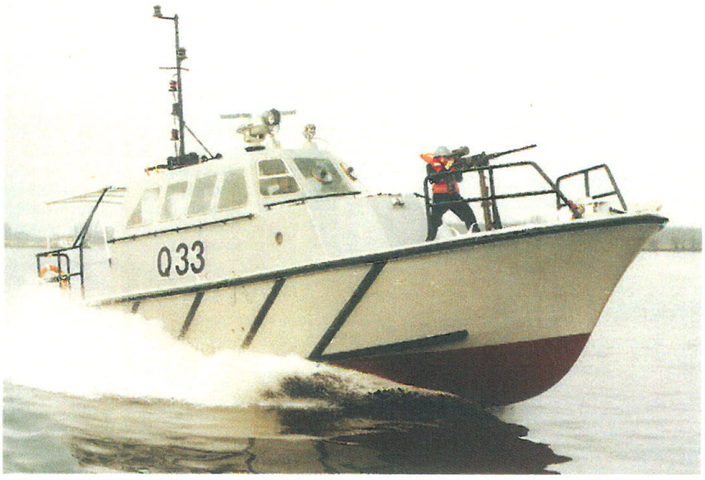


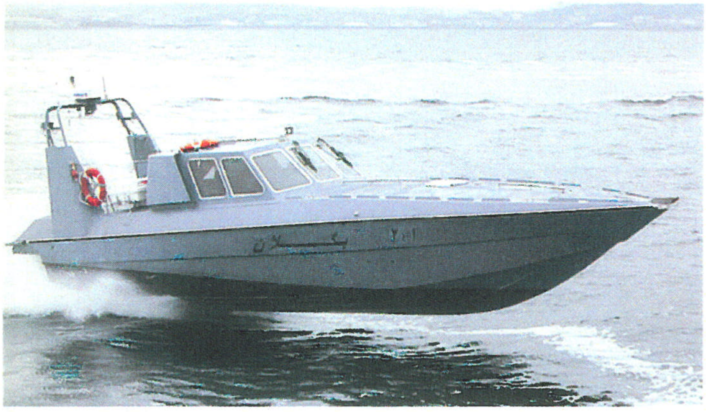
Q 33 *3/1980, Damen SY* / 0081617

4 + (2) DV 15 FAST INTERCEPT CRAFT (HSIC)

Displacement, tons: 12 full load
Dimensions, feet (metres): 50.9 × 9.8 × 2.6 *(15.5 × 3.0 × 0.8)*
Main machinery: 2 diesels; 2 surface drives
Speed, knots: 55. **Range, miles:** 400 at 30 kt
Complement: 4
Guns: 1—12.7 mm MG.
Radars: Surface search: I-band.

Comment: Built by CMN Cherbourg and one delivered every two months from October 2003. Composite hull construction similar to those in Yemeni service. Roles include coastal protection and security of offshore oil and gas installations.

NEW ENTRY



DV 15 class *2/2003*, CMN* / 0531701

AUXILIARIES

Notes: There are a number of amphibious craft including an LCT *Rabha* of 160 ft *(48.8 m)* with a capacity for three tanks and 110 troops, acquired in 1986-87. Also four Rotork craft and 30 Sea Jeeps in 1985. It is not clear how many of the smaller craft are for civilian use.

POLICE

Notes: (1) Requirements have been reported for patrol craft, two of 24 m, two of 22 m and 19 of 12 m. Also for two hovercraft.
(2) Two Halmatic 18 m pilot boats (based on Arun class lifeboat hull) delivered in 2000.

3 HALMATIC M 160 CLASS (PB)

Displacement, tons: 20 full load
Dimensions, feet (metres): 52.5 × 15.4 × 4.6 *(16 × 4.7 × 1.4)*
Main machinery: 2 MTU diesels; 520 hp(m) *(388 kW)* sustained; 2 shafts
Speed, knots: 27. **Range, miles:** 500 at 17 kt
Complement: 6
Guns: 1—7.62 mm MG.
Radars: Surface search: Racal Decca; I-band.

Comment: Order confirmed on 11 October 1995. Delivered to Police in November 1996. Similar to Police craft obtained by Caribbean countries.

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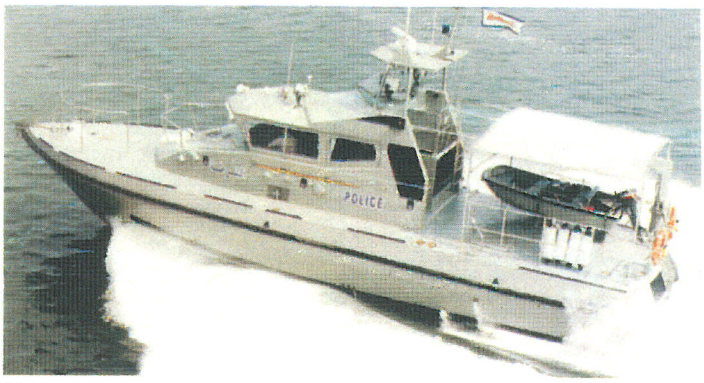

M 160 *11/1996, Halmatic* / 0081619

4 CRESTITALIA MV-45 CLASS (PB)

RG 91-94

Displacement, tons: 17 full load
Dimensions, feet (metres): 47.6 × 12.5 × 2.6 *(14.5 × 3.8 × 0.8)*
Main machinery: 2 diesels; 1,270 hp(m) *(933 kW)*; 2 shafts
Speed, knots: 32. **Range, miles:** 275 at 29 kt
Complement: 6
Guns: 1 Oerlikon 20 mm. 2—7.62 mm MGs.
Radars: Surface search: I-band.

Comment: Built by Crestitalia and delivered in mid-1989. GRP construction.

VERIFIED

3 WATERCRAFT P 1200 TYPE (PB)

Displacement, tons: 12.7 full load
Dimensions, feet (metres): 39 × 13.4 × 3.6 *(11.9 × 4.1 × 1.1)*
Main machinery: 2 Wizeman Mercedes 400 diesels; 660 hp(m) *(485 kW)*; 2 shafts
Speed, knots: 29
Complement: 4
Guns: 2—7.62 mm MGs.

Comment: Built by Watercraft, Shoreham, UK in 1980. Four have been deleted, replaced by Halmatic craft.

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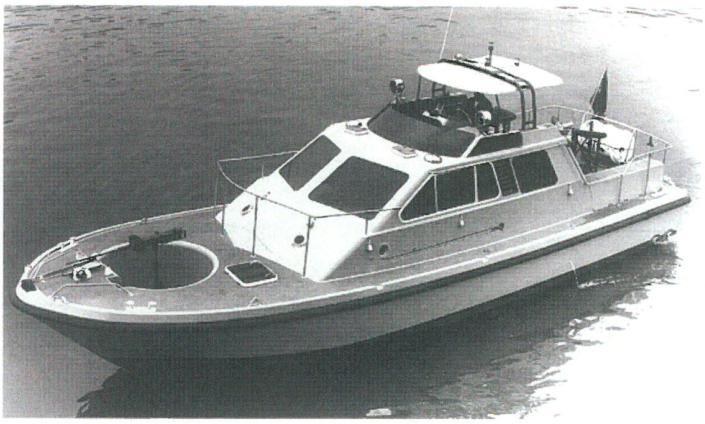


P 1200 *1980, Watercraft* / 0012937

Romania

Country Overview

Situated in south-eastern Europe, the Republic of Romania has an area of 91,700 square miles and is bordered to the north by Ukraine and Moldova, to the west by Hungary and Serbia, and to the south by Bulgaria. The River Danube forms much of the southern border. Romania has a coastline of 121 n miles with the Black Sea on which Constanta, linked to the Danube port of Cernavodà by canal, is the principal seaport. Prominent river ports include Galati and Bràila on the lower Danube, and Giurgiu, which has pipeline connections to the Ploiesti oil fields. The capital and largest city is Bucharest. Territorial waters (12 n miles) are claimed. An EEZ (299 n miles) is claimed but the limits have not been defined.

Headquarters Appointments

Commander-in-Chief of the Navy:
Vice Admiral Corneliu Rudencu

Personnel

(a) 2004: 8,000 Navy
(b) Reserves: 8,000
(c) Numbers are to be reduced to 8,500 by 2005.

Organisation

The Navy is composed of the Maritime Fleet, one River Flotilla and one Naval Infantry Battalion.

Bases

Black Sea—Mangalia (Training); Constanta (Naval HQ)
Danube—Bràila (HQ), Tulcea

Strength of the Fleet

Type	*Active (Reserve)*
Submarine	(1)
Frigate	1
Corvettes	9
River Monitors	8
Fast Attack Craft (Missile)	3
Fast Attack Craft (Torpedo)	12
River Patrol Craft	18
Minelayer/MCM Support	2
Minesweepers (Coastal and River)	16
Training Ship	2
Survey Ships	2

Border Guard

Responsible for land and sea borders and has four brigades, two of which have sea forces based at Orsova and Constanta.

DELETIONS

Patrol Forces

2001	6 Naluca, 8 Huchuan
2002	*Grivita*
2003	*Virtejul, Trasnetul, Tornada, Soimul, Eretele, Albatrosul*

Mine Warfare Forces

2001	*Gravrilescu, Balaniescu, Grecescu*

Auxiliaries

2002	*Eugen Stihi, Ion Ehiculescu, Automatica, Energetica*

PENNANT LIST

Submarines

521	Delfinul

Frigates

111	Marasesti

Corvettes

188	Zborul
189	Pescarusul
190	Lastunul
260	Admiral Petre Barbuneanu
261	Vice Admiral Vasile Scodrea
262	Vice Admiral Vasile Urseanu
263	Vice Admiral Eugeniu Rosca
264	Contre Admiral Eustatiu Sebastian
265	Admiral Horia Macelariu

Patrol Forces

45	Mikhail Kogalniceanu
46	I C Bratianu
47	Lascar Catargiu
176	Rahova
177	Opanez
178	Smirdan
179	Posada
180	Rovine
202	Smeul
204	Vijelia
206	Virtejul
209	Vulcanul

Mine Warfare Forces

24	Lieutenant Remus Lepri
25	Lieutenant Lupu Dunescu
29	Lieutenant Dimitrie Nicolescu
30	Sub Lieutenant Alexandru Axente
271	Vice Admiral Ioan Murgescu
274	Vice Admiral Constantin Balescu

Survey Ships

75	Grigore Antipa
115	Emil Racovita

Auxiliaries

281	Constanta
283	Midia
288	Mircea
296	Electronica
298	Magnetica
500	Grozavu
501	Hercules
532	Tulcea

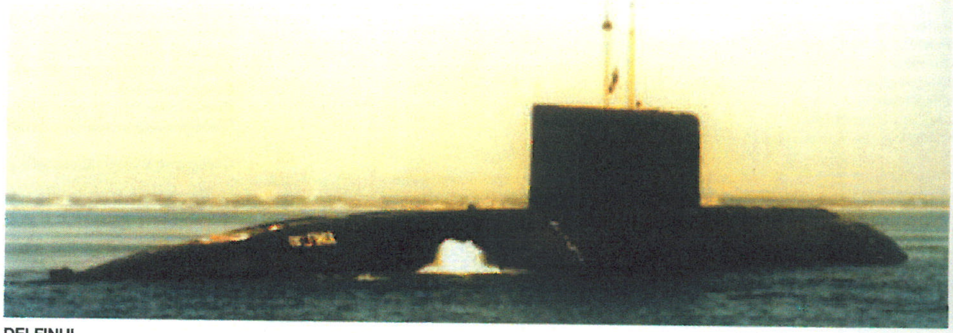
SUBMARINES

1 KILO CLASS (PROJECT 877E) (SSK)

DELFINUL 521

Displacement, tons: 2,325 surfaced; 3,076 dived
Dimensions, feet (metres): 238.2 × 32.8 × 21.7 *(72.6 × 10 × 6.6)*
Main machinery: Diesel-electric; 2 diesels; 3,650 hp(m) *(2.68 MW)*; 2 generators; 1 motor; 5,900 hp(m) *(4.34 MW)*; 1 shaft; 2 auxiliary MT-168 motors; 204 hp(m) *(150 kW)*; 1 economic speed motor; 130 hp(m) *(95 kW)*
Speed, knots: 10 surfaced; 17 dived; 9 snorting
Range, miles: 6,000 at 7 kt surfaced; 400 at 3 kt dived
Complement: 52 (12 officers)

Torpedoes: 6—21 in *(533 mm)* tubes. Combination of Russian 53-65; anti-surface; passive wake homing to 19 km *(10.3 n miles)* at 45 kt; warhead 300 kg or TEST-71; anti-submarine; active/passive (optional wire-guided) homing to 15 km *(8.1 n miles)* warhead 205 kg. Total of 18 weapons.
Mines: 24 in lieu of torpedoes.
Countermeasures: ESM: Brick Group; radar warning. Quad Loop D/F.
Radars: Surface search: Snoop Tray; I-band.
Sonars: Shark Teeth/Shark Fin; hull-mounted; passive search and attack; medium frequency.
Mouse Roar; active attack; high frequency.



DELFINUL

2001, Romanian Navy / 0114544

Programmes: Transferred from USSR in December 1986.
Structure: Diving depth, 240 m *(785 ft)*. Two torpedo tubes probably capable of firing wire-guided torpedoes. There is a well between the snort and W/T masts for a containerised portable SAM launcher for SA-N-5/8.

Operational: Based at Constanta. Used as a training ship until refit (not yet funded) is completed.

UPDATED

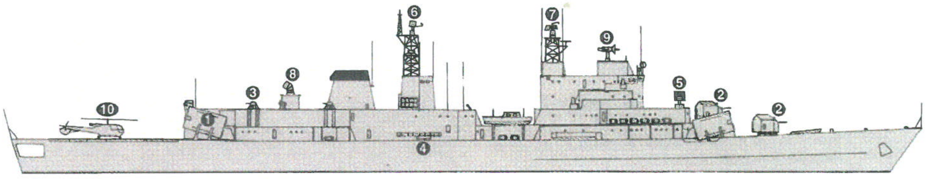
DELFINUL

6/2003* / 0052761

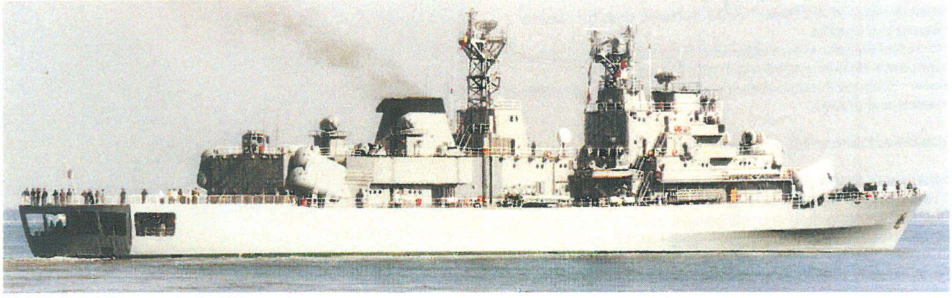
FRIGATES

1 MARASESTI CLASS (FFGH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
MARASESTI (ex-*Muntenia*)	111	Mangalia Shipyard	7 Aug 1979	4 June 1981	3 June 1985



MARASESTI *(Scale 1 : 1,200), Ian Sturton* / 0569825


MARASESTI *1/2001, van Ginderen Collection* / 0106855

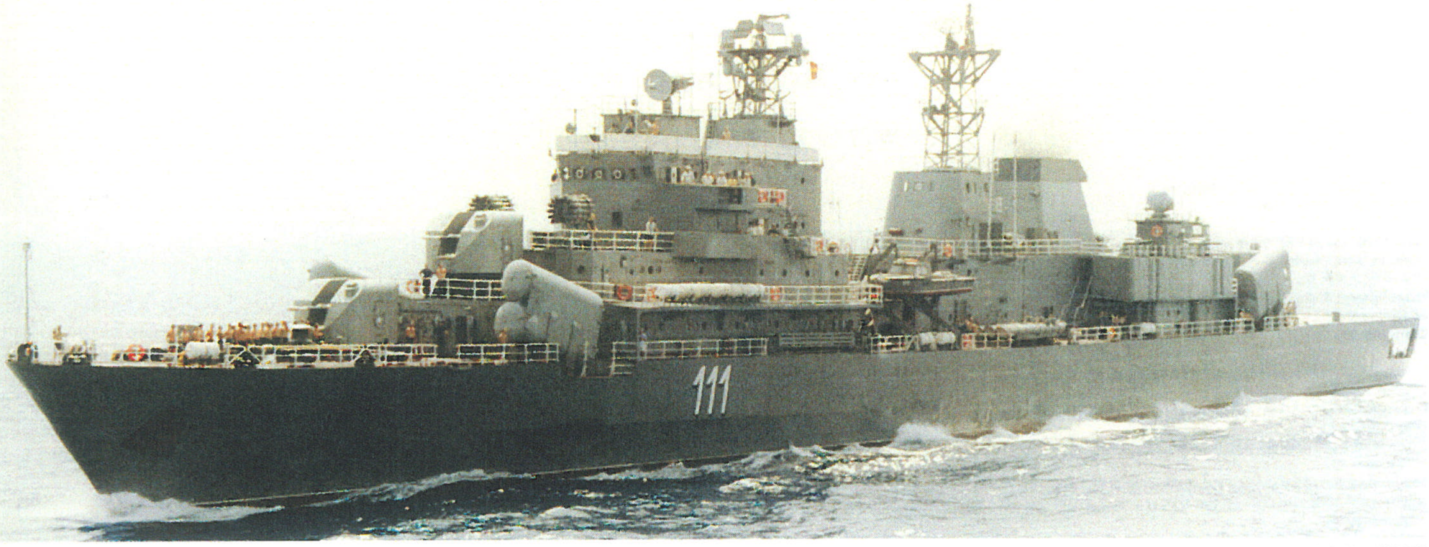
Displacement, tons: 5,790 full load
Dimensions, feet (metres): 474.4 × 48.6 × 23 *(144.6 × 14.8 × 7)*
Main machinery: 4 diesels; 32,000 hp(m) *(23.5 MW)*; 4 shafts
Speed, knots: 27
Complement: 270 (25 officers)

Missiles: SSM: 8 SS-N-2C Styx ❶; active radar or IR homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg.
Guns: 4 USSR 3 in *(76 mm)*/60 (2 twin) ❷; 90 rds/min to 15 km *(8 n miles)*; weight of shell 6.8 kg.
4—30 mm/65 ❸; 6 barrels per mounting; 3,000 rds/min to 2 km.
Torpedoes: 6—21 in *(533 mm)* (2 triple) tubes ❹. Russian 53-65; passive/wake homing to 25 km *(13.5 n miles)* at 50 kt; warhead 300 kg.
A/S mortars: 2 RBU 6000 ❺; 12-tubed trainable; range 6,000 m; warhead 31 kg.
Countermeasures: Decoys: 2 PK 16 chaff launchers.
ESM/ECM: 2 Watch Dog; intercept. Bell Clout and Bell Slam.
Radars: Air/surface search: Strut Curve ❻; F-band.
Surface search: Plank Shave ❼; E-band.
Fire control: Two Drum Tilt ❽; H/I-band.
Hawk Screech ❾; I-band.
Navigation: Nayada (MR 212); Racal Decca; I-band.
IFF: High Pole B.
Sonars: Hull-mounted; active search and attack; medium frequency.

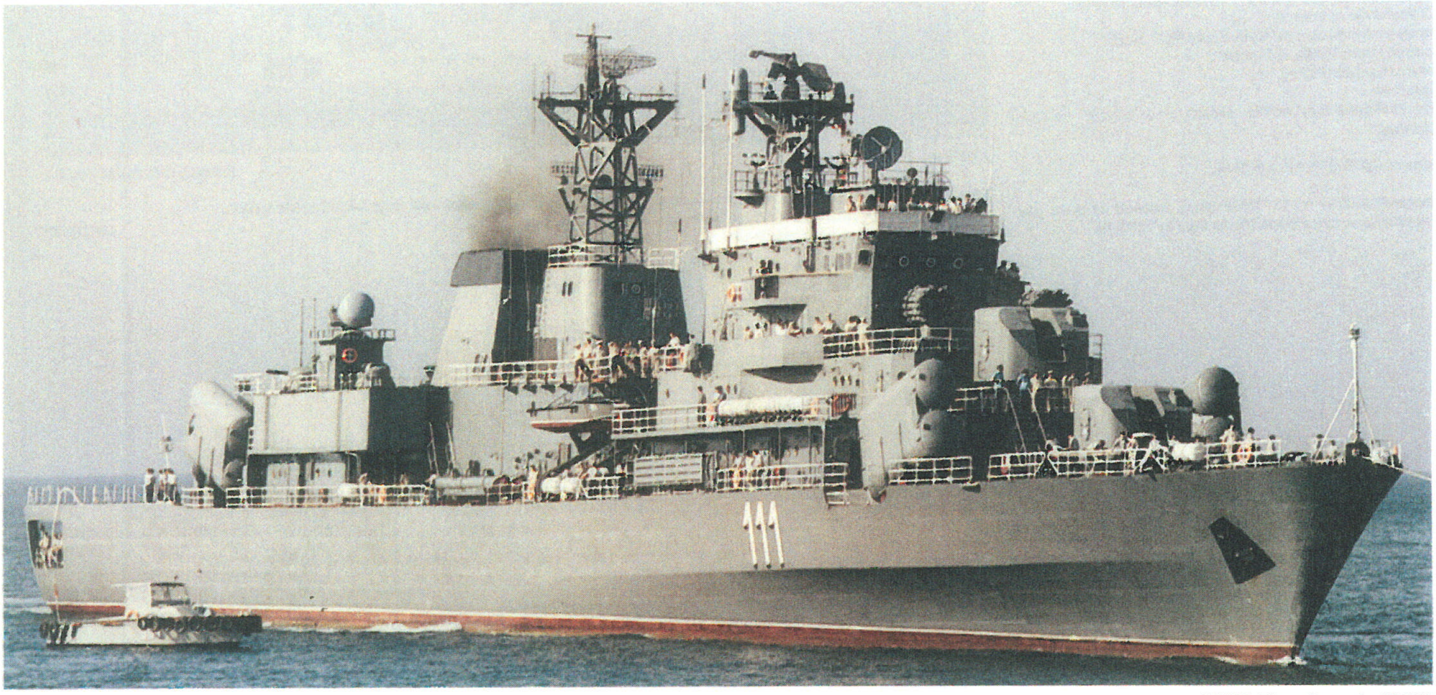
Helicopters: 2 IAR-316 Alouette III ❿.

Modernisation: Attempts have been made to modernise some of the electronic equipment. Also topweight problems have been addressed by reducing the height of the mast structures and lowering the Styx missile launchers by one deck. Two RBU 6000s have replaced the RBU 1200. A series of upgrades are planned including communications, Link 11 and improved weapons and sensors. Precise details of the package are not known but implementation is expected by 2006.
Structure: A distinctive Romanian design. Originally thought to be powered by gas turbines but a diesel configuration including four shafts is now confirmed.
Operational: Deactivated in June 1988 due to manpower and fuel shortages but modernisation work was done from 1990 to 1992 and sea trials started in mid-1992. Carried out a major naval exercise in September 1993, which included firing the Styx missile. Deployed to the Mediterranean in September 1994 for a short cruise, in 1995 on two occasions and again in March 1998. Reclassified as frigate in 2001. Based at Constanta.

VERIFIED



MARASESTI *11/1995* / 0052763



MARASESTI *7/1995, Diego Quevedo* / 0052762

0 + 2 BROADSWORD CLASS (TYPE 22) (FFHM)

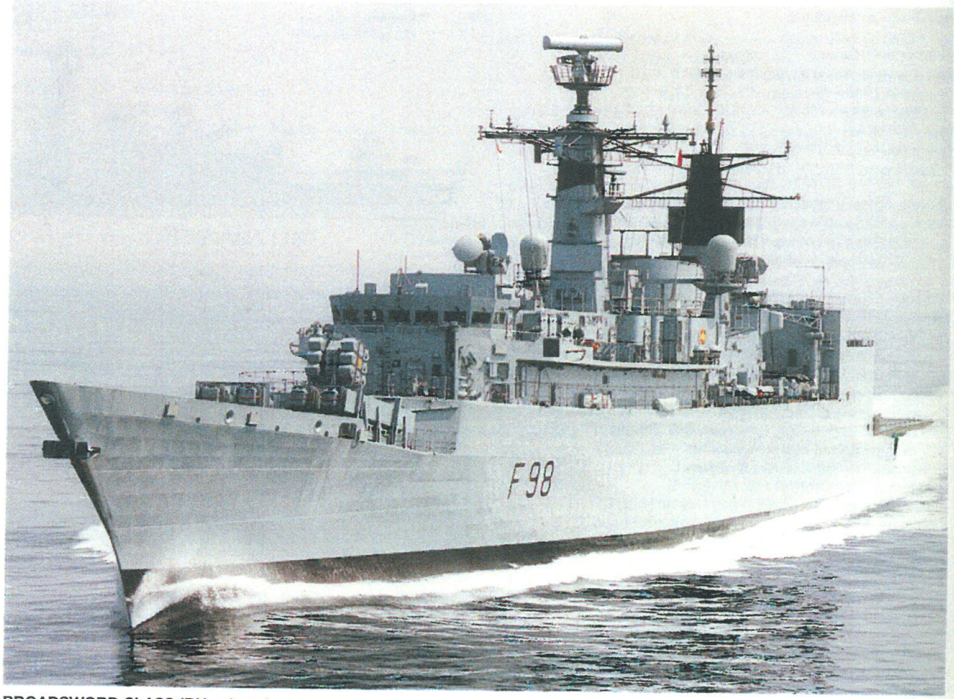
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
REGINA MARIA (ex-*London*)	222 (ex-F 95)	Yarrow Shipbuilders, Glasgow	7 Feb 1983	27 Oct 1984	5 June 1987
REGELE FERDINAND (ex-*Coventry*)	221 (ex-F 98)	Swan Hunter Shipbuilders, Wallsend-on-Tyne	29 Mar 1984	8 Apr 1986	14 Oct 1988

Displacement, tons: 4,100 standard; 4,800 full load
Dimensions, feet (metres): 480.5 × 48.5 × 21 *(146.5 × 14.8 × 6.4)*
Main machinery: CODOG: 2 RR Olympus TM3B gas turbines; 50,000 hp *(37.3 MW)* sustained; 2 RR Tyne RM1C gas turbines; 9,900 hp *(7.4 MW)*; 2 shafts; cp props
Speed, knots: 30; 18 on Tynes
Complement: 273 (30 officers) (accommodation for 296)

Guns: 1 OTO Melara 3 in *(76 mm)*/62 Super Rapid; 120 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
Countermeasures: Decoys: 2 Terma 130 mm DL-12 12-barrelled chaff launchers.
Combat data systems: Ferranti CACS 1.
Weapons control: Radamec 2500 optronic director. Nautis 3 fire-control system.
Radars: Air/Surface search: Marconi Type 967/968; D/E-band.
Navigation: Kelvin-Hughes Type 1007; I-band.
Sonars: Ferranti/Thomson Sintra Type 2050; hull-mounted search and attack.

Helicopters: Platform for 1 medium.

Programmes: Originally successors to the UK 'Leander' class, these ships entered RN service in 1987 but were withdrawn, half-way through their ships' lives, as a result of the 1998 UK Defence Review. Sale agreement signed on 14 January 2003 included platform overhaul, installation of reconditioned engines and combat system modernisation. Ex-*Coventry* to be delivered to Romania in late 2004 and ex-*London* in May 2005. Training is also included in the package.
Modernisation: BAE Systems is prime contractor and FSL sub-contractor for reactivation and modernisation. CACS command system to be upgraded and 76 mm gun to be installed. A second-phase upgrade is to be undertaken in Romania 2008-09. This is expected to include improved command and control, air-defence and anti-ship weapons and an improved EW suite.
Structure: 'Broadsword' Batch 2 ships were stretched versions of Batch 1. The flight decks are capable of embarking medium helicopters.



BROADSWORD CLASS (RN colours) *6/1997* / 0053195

Opinion: Acquisition of these ships gives Romania its first modern combatants. As well as providing an increase in capability, the ships will enable a higher degree of interoperability with NATO forces.

UPDATED

CORVETTES

2 IMPROVED TETAL CLASS (FSH)

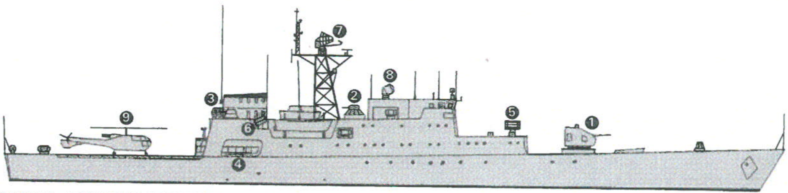
Name	*No*	*Builders*	*Launched*	*Commissioned*
CONTRE ADMIRAL EUSTATIU SEBASTIAN	264	Mangalia Shipyard	12 Apr 1988	30 Dec 1989
ADMIRAL HORIA MACELARIU	265	Mangalia Shipyard	15 May 1994	29 Sep 1997

Displacement, tons: 1,500 full load
Dimensions, feet (metres): 303.1 × 38.4 × 10 *(92.4 × 11.7 × 3.1)*
Main machinery: 4 diesels; 13,000 hp(m) *(9.6 MW)*; 4 shafts
Speed, knots: 24
Complement: 95

Guns: 1 USSR 3 in *(76 mm/60)* ❶; 120 rds/min to 15 km *(8 n miles)*; weight of shell 6.8 kg.
2—30 mm/65 AK 630 ❷; 6 barrels per mounting; 3,000 rds/min to 2 km.
2—30 mm/65 AK 306 ❸; 6 barrels per mounting; 3,000 rds/min to 2 km.
Torpedoes: 4—21 in *(533 mm)* (2 twin) tubes ❹. Russian 53—65; passive/wake homing to 25 km *(13.5 n miles)* at 50 kt; warhead 300 kg.
A/S mortars: 2 RBU 6000 ❺; 12-tubed trainable; range 6,000 m; warhead 31 kg.
Countermeasures: Decoys: 2 PK 16 chaff launchers ❻.
ESM: 2 Watch Dog; intercept.
Radars: Air/surface search; Strut Curve ❼; F-band.
Fire control: Drum Tilt ❽; H/I-band.
Navigation: Nayada; I-band.
IFF: High Pole.
Sonars: Hull-mounted; active search and attack; medium frequency.

Helicopters: 1 IAR-316 Aloutte III ❾.

Programmes: Follow on to 'Tetal' class. Second of class was delayed when work stopped for a time in 1993-94.



CONTRE ADMIRAL EUSTATIU SEBASTIAN *(Scale 1 : 900), Ian Sturton*

ADMIRAL HORIA MACELARIU *9/2002, C D Yaylali* / 0533315

Structure: As well as improved armament and a helicopter deck, there are superstructure changes from the original Tetals, but the hull and propulsion machinery are the same.

Operational: Both based at Mangalia.

UPDATED

ADMIRAL HORIA MACELARIU *9/2002, C D Yaylali* / 0533314

4 TETAL CLASS (FS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ADMIRAL PETRE BARBUNEANU	260	Mangalia Shipyard	23 May 1981	4 Feb 1983
VICE ADMIRAL VASILE SCODREA	261	Mangalia Shipyard	5 June 1982	3 Jan 1984
VICE ADMIRAL VASILE URSEANU	262	Mangalia Shipyard	9 Sep 1983	3 Jan 1985
VICE ADMIRAL EUGENIU ROSCA	263	Mangalia Shipyard	11 July 1985	23 Apr 1987

Displacement, tons: 1,440 full load
Dimensions, feet (metres): 303.1 × 38.4 × 9.8 *(92.4 × 11.7 × 3)*
Main machinery: 4 diesels; 13,000 hp(m) *(9.6 MW)*; 4 shafts
Speed, knots: 24
Complement: 98

Guns: 4 USSR 3 in *(76 mm)*/60 (2 twin) ❶; 90 rds/min to 15 km *(8 n miles)*; weight of shell 6.8 kg.
4 USSR 30 mm/65 (2 twin) ❷; 500 rds/min to 4 km (2.2 n *miles)*; weight of shell 0.54 kg.
2—14.5 mm MGs.
Torpedoes: 4—21 in *(533 mm)* (2 twin) tubes ❸. Russian 53-65; passive/wake homing to 25 km *(13.5 n miles)* at 50 kt; warhead 300 kg.
A/S mortars: 2 RBU 2500 16-tubed trainable ❹; range 2,500 m; warhead 21 kg.
Countermeasures: Decoys: 2 PK 16 chaff launchers.
ESM: 2 Watch Dog; intercept.
Radars: Air/surface search: Strut Curve ❺; F-band.
Fire control: Drum Tilt ❻; H/I-band. Hawk Screech ❼; I-band.
Navigation: Nayada; I-band.
IFF: High Pole.
Sonars: Hercules (MG 322); Hull-mounted; active search and attack; medium frequency.

Programmes: Building terminated in 1987 in favour of the improved design with a helicopter platform.
Structure: A modified Soviet Koni design.
Operational: All based at Constanta. Two may be decommissioned as Type 22 frigates enter service.

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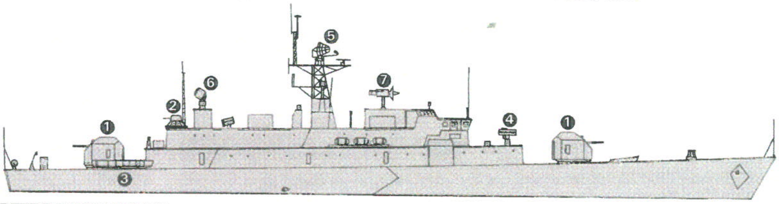
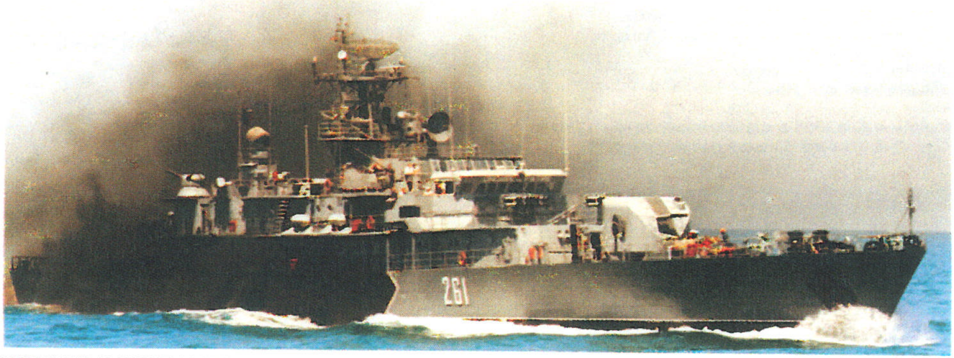
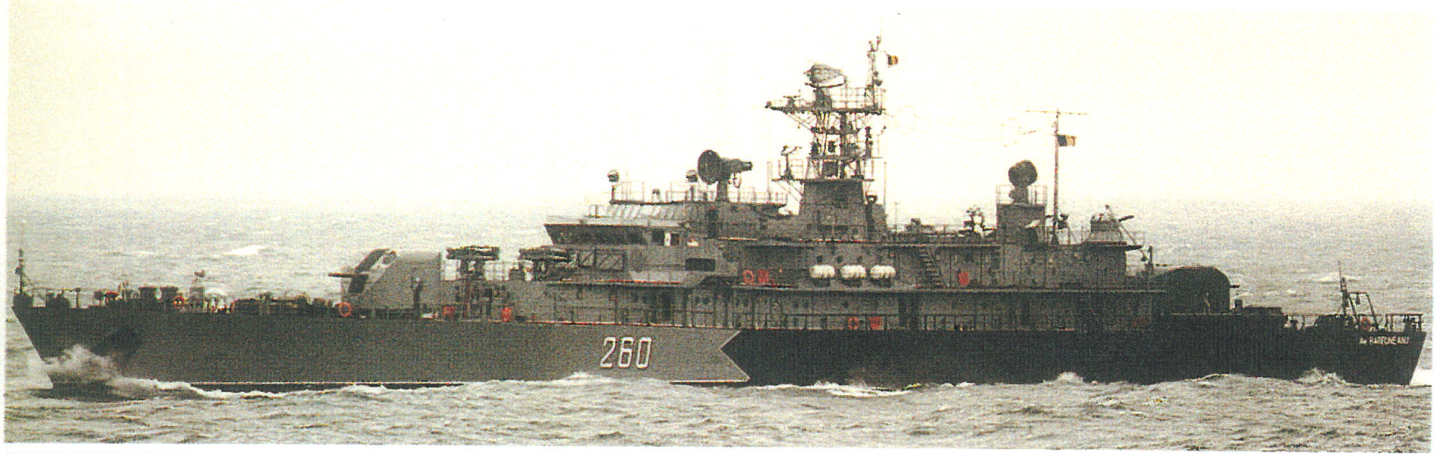


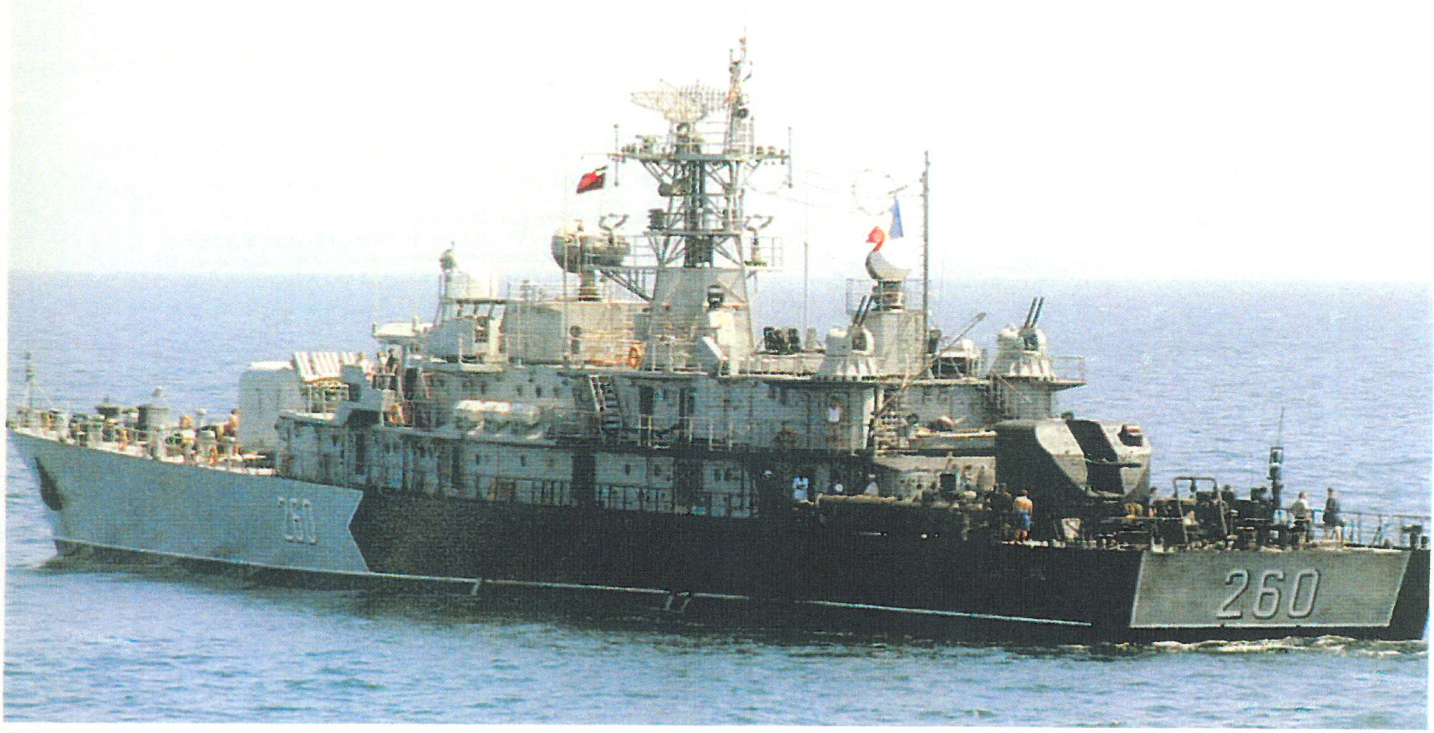
ADMIRAL PETRE BARBUNEANU *(Scale 1 : 900), Ian Sturton*



VICE ADMIRAL VASILE SCODREA *4/1999, Fafio* / 0081620



ADMIRAL PETRE BARBUNEANU *7/1998* / 0050723



ADMIRAL PETRE BARBUNEANU *6/2001* / 0126335

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3 ZBORUL (TARANTUL I) CLASS (PROJECT 1241 RE) (FSG)

Name	*No*	*Builders*	*Commissioned*
ZBORUL	188	Petrovsky Shipyard	Dec 1990
PESCARUSUL	189	Petrovsky Shipyard	Feb 1992
LASTUNUL	190	Petrovsky Shipyard	Feb 1992

Displacement, tons: 385 standard; 455 full load
Dimensions, feet (metres): 184.1 × 37.7 × 8.2 *(56.1 × 11.5 × 2.5)*
Main machinery: COGAG; 2 Type DR 77 gas turbines; 16,016 hp(m) *(11.77 MW)* sustained; 2 Nikolayev Type DR 76 gas turbines with reversible gearboxes; 4,993 hp(m) *(3.67 MW)* sustained; 2 shafts
Speed, knots: 36. **Range, miles:** 2,000 at 20 kt; 400 at 36 kt
Complement: 41 (5 officers)
Missiles: 4 SS-N-2C Styx (2 twin); active radar or IR homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg.
Guns: 1 USSR 3 in *(76 mm)*/60; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg. 2—30 mm/65 AK 630; 6 barrels per mounting; 3,000 rds/min to 2 km.
Countermeasures: 2 PK 16 chaff launchers.
ESM: 2 Watch Dog; intercept.
Weapons control: Hood Wink optronic director.
Radars: Air/surface search: Plank Shave; E-band.
Fire control: Bass Tilt; H/I-band.
Navigation: Spin Trough; I-band.
IFF: Square Head. High Pole.

Comment: Built in 1985 and later transferred from the USSR. Export version similar to those built for Poland, India and Yemen. Based at Mangalia.

VERIFIED

LASTUNUL
190

LASTUNUL *6/1998, Valentino Cluru* / 0052766

SHIPBORNE AIRCRAFT

Numbers/Type: 6 IAR-316B Alouette III.
Operational speed: 113 kt *(210 km/h)*.
Service ceiling: 10,500 ft *(3,200 m)*.
Range: 290 n miles *(540 km)*.
Role/Weapon systems: ASW helicopter. Sensors: Nose-mounted search radar. Weapons: ASW; two lightweight torpedoes.

VERIFIED

LAND-BASED MARITIME AIRCRAFT

Numbers/Type: 5 Mil Mi-14PL Haze A.
Operational speed: 124 kt *(230 km/h)*.
Service ceiling: 15,000 ft *(4,570 m)*.
Range: 432 n miles *(800 km)*.
Role/Weapon systems: Medium-range ASW helicopter. Sensors: Short Horn search radar, dipping sonar, MAD, sonobuoys. Weapons: ASW; internally stored torpedoes, depth mines and bombs.

VERIFIED

HAZE PL (Polish colours) *6/2000* / 0105235

PATROL FORCES

Notes: There is a total of about 20 river patrol boats. These include three 27 ft Boston Whalers presented by the US in March 1993 for Customs/Police patrols on the Danube in support of UN sanctions operations. There is also a hovercraft built at Mangalia in 1998.

3 KOGALNICEANU CLASS (RIVER MONITORS) (PGR)

Name	*No*	*Builders*	*Recommissioned*
MIKHAIL KOGALNICEANU	45	Mangalia Shipyard	19 Dec 1993
I C BRATIANU	46	Mangalia Shipyard	28 Dec 1994
LASCAR CATARGIU	47	Mangalia Shipyard	22 Nov 1996

Displacement, tons: 575 full load
Dimensions, feet (metres): 170.6 × 29.5 × 5.6 *(52 × 9 × 1.7)*
Main machinery: 2 diesels; 4,900 hp(m) *(3.6 MW)*; 2 shafts
Speed, knots: 18
Guns: 2—100 mm (tank turrets). 4—30 mm (2 twin). 4—14.5 mm (2 twin). 2—122 mm BM-21 rocket launchers.
Radars: Navigation: I-band.

Comment: Based at Braila.

VERIFIED

I C BRATIANU *6/1999, Romanian Navy* / 0081622

5 BRUTAR CLASS (RIVER MONITORS) (PGR)

Name	*No*	*Builders*	*Commissioned*
RAHOVA	176	Mangalia Shipyard	14 Apr 1988
OPANEZ	177	Mangalia Shipyard	24 July 1990
SMIRDAN	178	Mangalia Shipyard	24 July 1990
POSADA	179	Mangalia Shipyard	14 May 1992
ROVINE	180	Mangalia Shipyard	30 June 1993

Displacement, tons: 410 full load
Dimensions, feet (metres): 150 × 26.4 × 4.9 *(45.7 × 8 × 1.5)*
Main machinery: 2 diesels; 2,700 hp(m) *(2 MW)*; 2 shafts
Speed, knots: 16
Guns: 1—100 mm (tank turret). 2—30 mm (twin). 10—14.5 mm (2 quad, 2 single) MGs. 2—122 mm BM-21 rocket launchers; 40-tubed trainable.
Radars: Navigation; I-band.

Comment: Operational with the Danube Flotilla. The first is a Brutar I. The next pair are Brutar IIs based at Tulcea and the last two are Brutar IIs based at Mangalia.

UPDATED

RAHOVA *10/2003*, Freddy Philips* / 0567529

ROVINE *10/2003*, Freddy Philips* / 0567525

6 HUCHUAN CLASS (FAST ATTACK CRAFT—TORPEDO) (PTK)

320, 321, 324, 325, 353, 354

Displacement, tons: 39 standard; 45 full load
Dimensions, feet (metres): 71.5 × 20.7 oa; 11.8 hull × 3.3 *(21.8 × 6.3; 3.6 × 1)*
Main machinery: 3 Type M 50 diesels; 3,300 hp(m) *(2.4 MW)* sustained; 3 shafts
Speed, knots: 50 foilborne. **Range, miles:** 500 at 30 kt
Complement: 11
Guns: 4—14.5 mm/93 (2 twin) MGs.
Torpedoes: 2—21 in *(533 mm)* tubes; anti-surface.
Depth charges: 2 rails.
Radars: Surface search: Type 753; I-band.

Comment: Hydrofoils of the same class as the Chinese. *353-354* built at Mangalia Shipyard 1974-1983. *320-325* was a repeat order also built at Mangalia 1988-1990. Following 19 deletions, these vessels remain in service although further deletions are expected. Based at Mangalia.

UPDATED

HUCHUAN CLASS *6/1999, Romanian Navy* / 0081624

3 NALUCA CLASS (FAST ATTACK CRAFT—TORPEDO) (PTF)

Name	*No*	*Builders*	*Commissioned*
SMEUL	202	Mangalia Shipyard	25 Oct 1979
VIJELIA	204	Mangalia Shipyard	7 Feb 1980
VULCANUL	209	Mangalia Shipyard	26 Oct 1981

Displacement, tons: 215 full load
Dimensions, feet (metres): 120.7 × 24.9 × 5.9 *(36.8 × 7.6 × 1.8)*
Main machinery: 3 Type M 503A diesels; 8,025 hp *(5.9 MW)* sustained; 3 shafts
Speed, knots: 36. **Range, miles:** 500 at 35 kt
Complement: 22 (4 officers)
Guns: 4—30 mm/65 (2 twin) AK 230.
Torpedoes: 4—21 in *(533 mm)* tubes; anti-surface.
Radars: Surface search: Pot Drum; H/I-band.
Fire control: Drum Tilt; H/I-band.
IFF: High Pole A.

Comment: Based on the 'Osa' class hull with torpedo tubes in lieu of SSMs. Last remaining three craft. Based at Mangalia.

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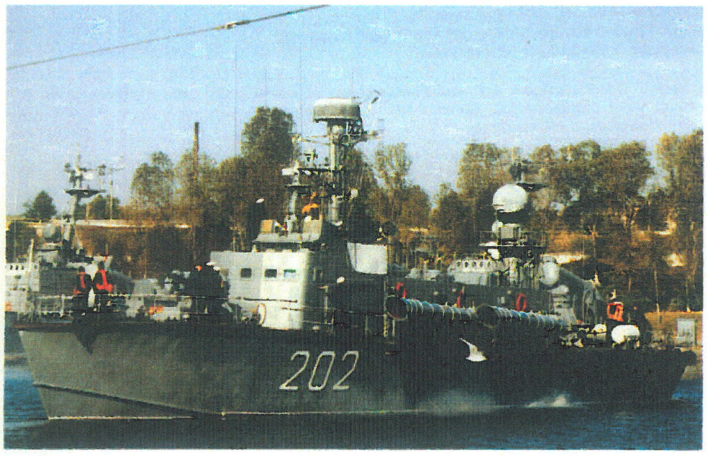


SMEUL *6/1999, Romanian Navy* / 0081625

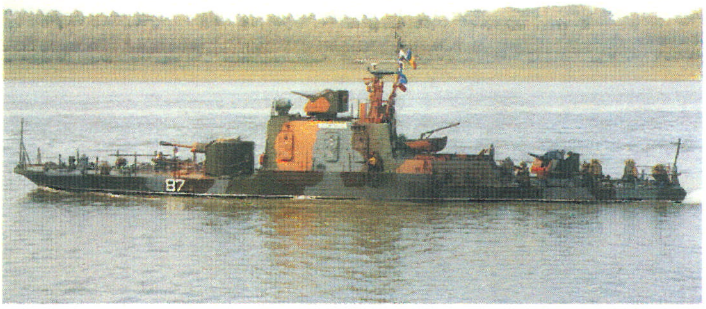
18 VB 76 MONITOR CLASS (RIVER PATROL CRAFT) (PGR)

VB 76-93

Displacement, tons: 127 full load
Dimensions, feet (metres): 106.3 × 15.8 × 3 *(32.4 × 4.8 × 0.9)*
Main machinery: 2 diesels; 1,700 hp(m) *(1.25 MW)*; 2 shafts
Speed, knots: 17
Complement: 25
Guns: 1—76 mm. 4—14.5 mm (2 twin). 1—81 mm mortar.

Comment: Built in Mangalia Shipyard from 1974-77. Belong to Danube Flotilla. 76-78 based at Sulina, 79-90 at Braila and 91-93 at Tulcea. All are reported as being in service.

UPDATED



VB 87 *10/2003*, Freddy Philips* / 0567526

MINE WARFARE FORCES

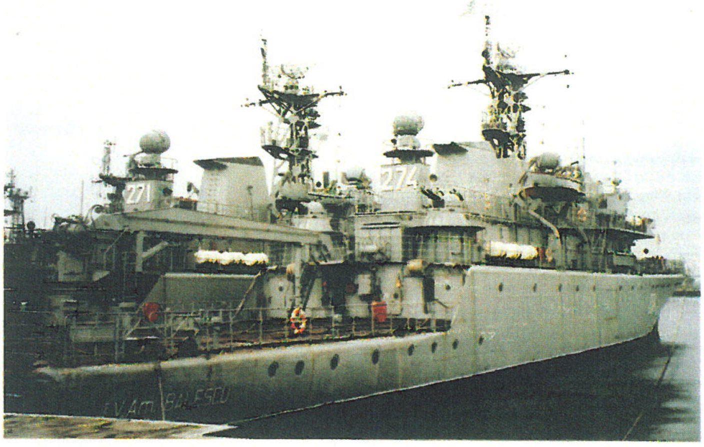
2 CORSAR CLASS
(MINELAYER/MCM SUPPORT SHIPS) (ML/MCS)

Name	*No*	*Builders*	*Commissioned*
VICE ADMIRAL IOAN MURGESCU	271	Mangalia Shipyard	30 Dec 1980
VICE ADMIRAL CONSTANTIN BALESCU	274	Mangalia Shipyard	16 Nov 1981

Displacement, tons: 1,450 full load
Dimensions, feet (metres): 259.1 × 34.8 × 11.8 *(79 × 10.6 × 3.6)*
Main machinery: 2 diesels; 6,400 hp(m) *(4.7 MW)*; 2 shafts
Speed, knots: 19
Complement: 75
Guns: 1—57 mm/70. 4—30 mm/65 (2 twin) AK 230. 8—14.5 mm (2 quad) MGs.
A/S mortars: 2 RBU 1200 5-tubed fixed; range 1,200 m; warhead 34 kg.
Mines: 200.
Countermeasures: ESM: Watch Dog; intercept.
Radars: Air/surface search: Strut Curve; F-band.
Navigation: Don 2; I-band.
Fire control: Muff Cob; G/H-band. Drum Tilt; H/I-band.
Sonars: Tamir II; hull-mounted; active search; high frequency.

Comment: 271 has a helicopter platform for one IAR-316 Alouette III. 274 has a large crane on the after deck. Similar to survey ship *Grigore Antipa*. Based at Constanta.

VERIFIED



VICE ADMIRAL CONSTANTIN BALESCU *6/1999, Romanian Navy* / 0081627

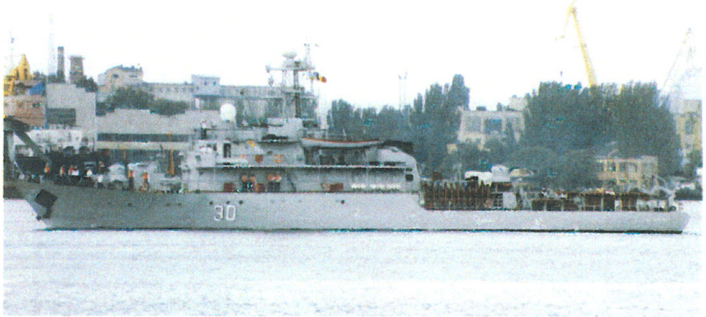
4 MUSCA CLASS (MINESWEEPERS—COASTAL) (MSC)

Name	*No*	*Builders*	*Commissioned*
LIEUTENANT REMUS LEPRI	24	Mangalia Shipyard	23 Apr 1987
LIEUTENANT LUPU DUNESCU	25	Mangalia Shipyard	6 Jan 1989
LIEUTENANT DIMITRIE NICOLESCU	29	Mangalia Shipyard	7 Dec 1989
SUB LIEUTENANT ALEXANDRU AXENTE	30	Mangalia Shipyard	7 Dec 1989

Displacement, tons: 790 full load
Dimensions, feet (metres): 194.2 × 31.1 × 9.2 *(59.2 × 9.5 × 2.8)*
Main machinery: 2 diesels; 4,800 hp(m) *(3.5 MW)*; 2 shafts
Speed, knots: 17
Complement: 60
Missiles: SAM: 2 quad SA-N-5 launchers.
Guns: 4—30 mm/65 (2 twin) AK 230.
A/S mortars: 2 RBU 1200 5-tubed fixed; range 1,200 m; warhead 34 kg.
Radars: Surface search: Krivach; I-band.
Fire control: Drum Tilt; H/I-band.
Navigation: Nayada; I-band.
Sonars: Hull-mounted; active search; high frequency.

Comment: Reported as having a secondary mining capability but this is not confirmed. Based at Mangalia.

UPDATED



SUB LIEUTENANT ALEXANDRU AXENTE *3/2003*, B Lemachko* / 0567527

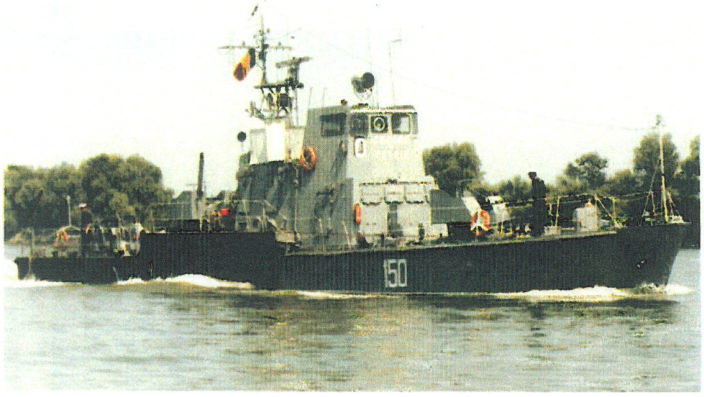
12 VD 141 CLASS (RIVER MINESWEEPERS) (MSR)

141-165 series

Displacement, tons: 97 full load
Dimensions, feet (metres): 109 × 15.7 × 2.8 *(33.3 × 4.8 × 0.9)*
Main machinery: 2 diesels; 870 hp(m) *(640 kW)*; 2 shafts
Speed, knots: 13
Guns: 4—14.5 mm (2 twin) MGs.
Mines: 6.
Radars: Navigation: Nayada; I-band.

Comment: Built in Romania at Dobreta Severin Shipyard 1976-84. Belong to the Danube Flotilla.

UPDATED



VD 150 *6/1999, Romanian Navy* / 0081629

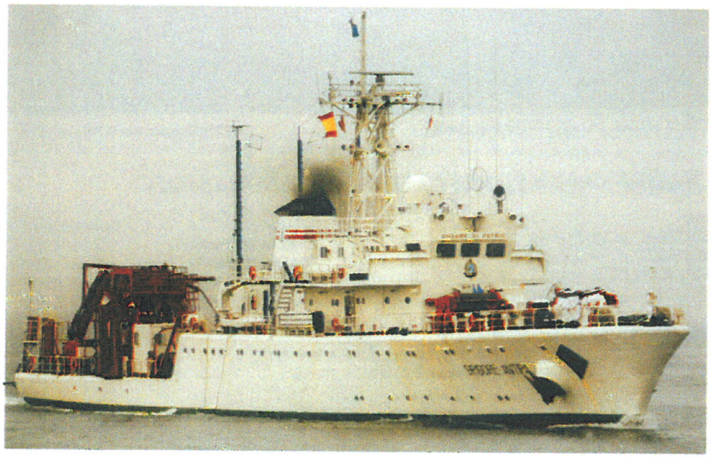
SURVEY AND RESEARCH SHIPS

1 CORSAR CLASS (AGOR/AGI)

Name	*No*	*Builders*	*Commissioned*
GRIGORE ANTIPA	75	Mangalia Shipyard	25 May 1980

Displacement, tons: 1,450 full load
Dimensions, feet (metres): 259.1 × 34.8 × 11.8 *(79 × 10.6 × 3.6)*
Main machinery: 2 diesels; 6,400 hp(m) *(4.7 MW)*; 2 shafts
Speed, knots: 19
Complement: 75
Radars: Navigation: Nayada; I-band.

Comment: Large davits aft for launching manned submersible. Same hull as 'Corsar' class. Used mostly as an AGI. Based at Constanta. ***VERIFIED***



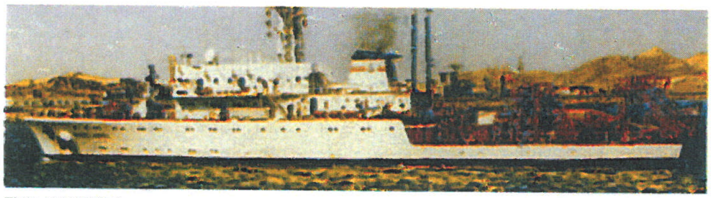
GRIGORE ANTIPA *5/1998*, ***Diego Quevedo*** / 0052770

1 RESEARCH SHIP (AGOR/AGI)

Name	*No*	*Builders*	*Commissioned*
EMIL RACOVITA	115	Drobeta Severin Shipyard	30 Oct 1977

Displacement, tons: 1,900 full load
Dimensions, feet (metres): 229.9 × 32.8 × 12.7 *(70.1 × 10 × 3.9)*
Main machinery: 1 diesel; 3,285 hp(m) *(2.4 MW)*; 1 shaft
Speed, knots: 11
Complement: 80

Comment: Modernised in the mid-1980s. Similar design to *Grigore Antipa*. Used mostly as an AGI. Based at Constanta. ***VERIFIED***



EMIL RACOVITA ***2001, Romanian Navy*** / 0114548

TRAINING SHIPS

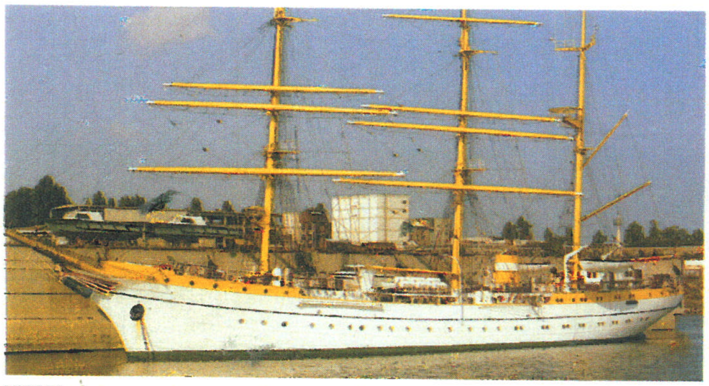
Notes: *Neptun* belongs to the Merchant Navy.

1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
MIRCEA	288	Blohm + Voss, Hamburg	29 Sep 1938	29 Mar 1939

Displacement, tons: 1,604 full load
Dimensions, feet (metres): 206; 266.4 (with bowsprit) × 39.3 × 16.5 *(62.8; 81.2 × 12 × 5.2)*
Main machinery: 1 MaK 6M 451 auxiliary diesel; 1,000 hp(m) *(735 kW)*; 1 shaft
Speed, knots: 8. **Range, miles:** 5,000 at 8 kt
Complement: 83 (5 officers) plus 140 midshipmen
Radars: Navigation: Decca 202; I-band.

Comment: Refitted at Hamburg in 1966. Sail area, 5,739 m² *(18,830 sq ft)*. A smaller version of US Coast Guard cutter *Eagle*, German *Gorch Fock* and Portuguese *Sagres*. Based at Constanta. ***UPDATED***



MIRCEA ***10/2003*, Freddy Philips*** / 0567528

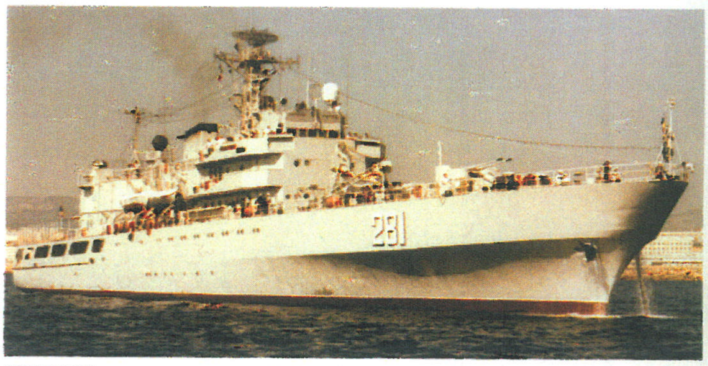
AUXILIARIES

2 CROITOR CLASS (LOGISTIC SUPPORT SHIPS) (AETLMH)

Name	*No*	*Builders*	*Commissioned*
CONSTANTA	281	Braila Shipyard	15 Sep 1980
MIDIA	283	Braila Shipyard	26 Feb 1982

Displacement, tons: 2,850 standard; 3,500 full load
Dimensions, feet (metres): 354.3 × 44.3 × 12.5 *(108 × 13.5 × 3.8)*
Main machinery: 2 diesels; 6,500 hp(m) *(4.8 MW)*; 2 shafts
Speed, knots: 16
Missiles: SAM: 2 SA-N-5 Grail quad launchers; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; warhead 1.5 kg.
Guns: 2—57 mm/70 (twin). 4—30 mm/65 (2 twin). 8—14.5 mm (2 quad) MGs.
A/S mortars: 2 RBU 1200 5-tubed fixed; range 1,200 m; warhead 34 kg.
Countermeasures: ESM: 2 Watch Dog; intercept.
Radars: Air/surface search: Strut Curve; F-band.
Navigation: Krivach; I-band.
Fire control: Muff Cob; G/H-band. Drum Tilt; H/I-band.
Sonars: Tamir II; hull-mounted; active attack; high frequency.
Helicopters: 1 IAR-316 Alouette III type.

Comment: These ships are a scaled down version of Soviet 'Don' class. Forward crane for ammunition replenishment. Some ASW escort capability. Can carry Styx missiles and torpedoes. Based at Constanta. ***UPDATED***



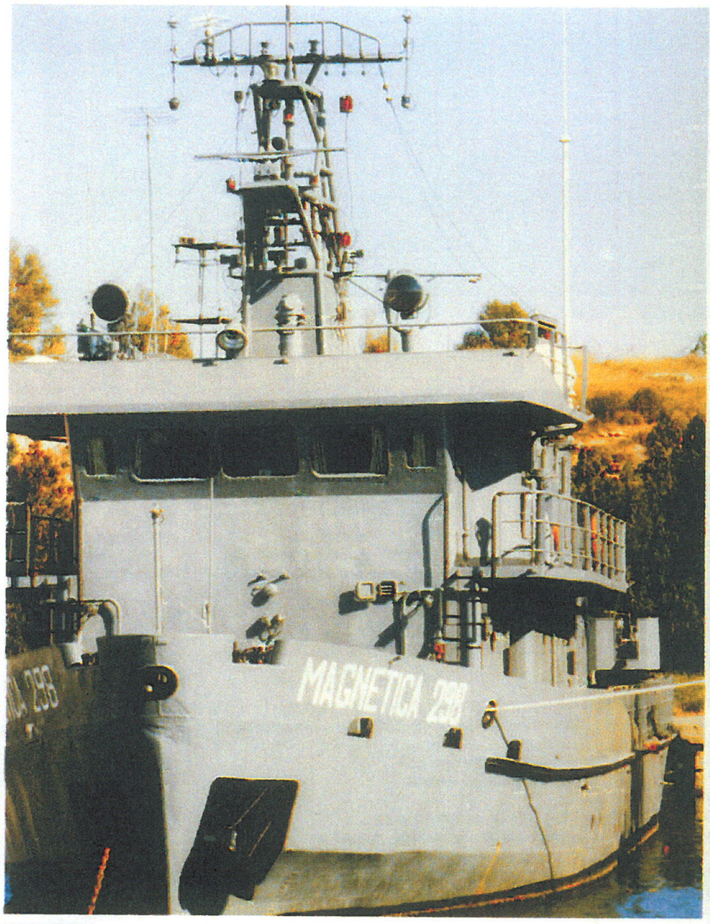
CONSTANTA ***6/2001, Schaeffer/Marsan*** / 0533268

2 DEGAUSSING SHIPS (ADG/AGI)

Name	*No*	*Builders*	*Commissioned*
ELECTRONICA	296	Braila Shipyard	6 Aug 1973
MAGNETICA	298	Mangalia Shipyard	18 Dec 1989

Displacement, tons: 299 full load
Dimensions, feet (metres): 134 × 21.6 × 10.7 *(40.8 × 6.6 × 3.2)*
Main machinery: Diesel-electric; 1 diesel generator; 600 kW; 1 shaft
Speed, knots: 12.5
Complement: 18
Guns: 2—14.5 mm (twin) MGs. 2—12.7 mm MGs.

Comment: Built for degaussing ships up to 3,000 tons displacement. Electronica is used as an AGI. Based at Tulcea. ***UPDATED***



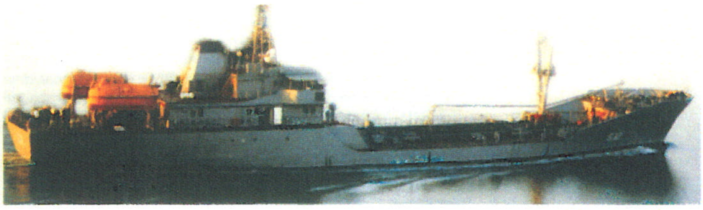
MAGNETICA ***6/1999, Romanian Navy*** / 0081632

1 TANKER (AOT)

TULCEA 532

Displacement, tons: 2,170 full load
Dimensions, feet (metres): 250.4 × 41 × 16.4 *(76.3 × 12.5 × 5)*
Main machinery: 2 diesels; 4,800 hp(m) *(3.5 MW)*; 2 shafts
Speed, knots: 16
Cargo capacity: 1,200 tons oil
Guns: 2—30 mm/65 (twin). 4—14.5 mm (2 twin) MGs.

Comment: First one built by Tulcea Shipyard and commissioned 24 December 1992. Second of class reported in 1997 but not confirmed. Based at Constanta. ***VERIFIED***



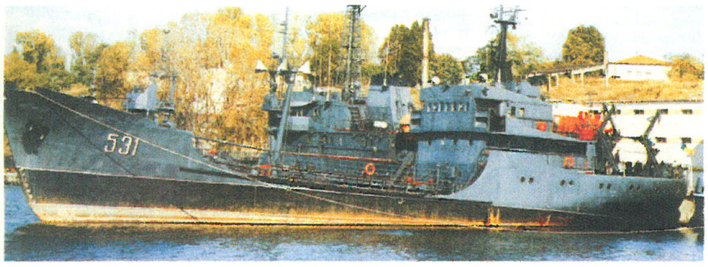
TULCEA *2001, Romanian Navy* / 0114542

2 COASTAL TANKERS (AOTL)

530 531

Displacement, tons: 1,042 full load
Dimensions, feet (metres): 181.2 × 30.9 × 13.4 *(55.2 × 9.4 × 4.1)*
Main machinery: 2 diesels; 1,800 hp(m) *(1.3 MW)*; 2 shafts
Speed, knots: 12.5
Cargo capacity: 500 tons oil
Guns: 1—37 mm. 2—12.7 mm MGs.

Comment: Built by Braila Shipyard and both commissioned 15 June 1971. Based at Constanta. ***VERIFIED***



531 *6/1999, Romanian Navy* / 0081636

1 FLAG OFFICERS BARGE

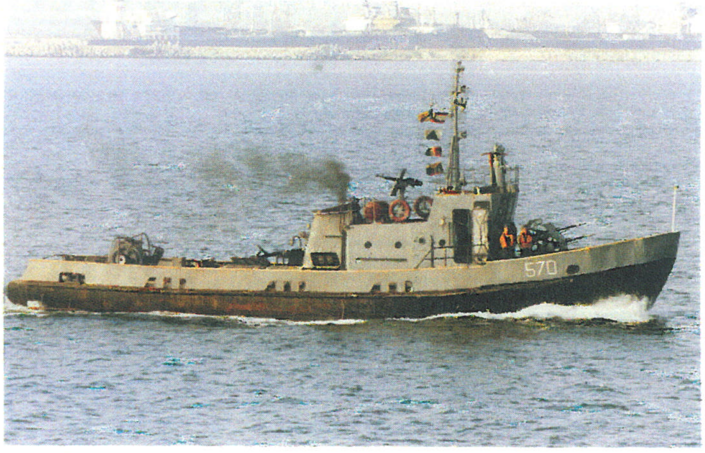
RINDUNICA

Displacement, tons: 40 full load
Dimensions, feet (metres): 78.7 × 16.4 × 3.6 *(24 × 5 × 1.1)*
Main machinery: 2 diesels; 2,200 hp(m) *(1.6 MW)*; 2 shafts
Speed, knots: 28
Complement: 6

Comment: Used as a barge by the Commander-in-Chief. ***VERIFIED***

TUGS

Notes: There are also a number of harbour and river tugs, some of which are armed. These include two Roslavl (101 and 116) at Mangalia.



HARBOUR TUG 570 *12/1994* / 0081638

2 OCEAN TUGS (ATA)

GROZAVU 500 **HERCULES** 501

Displacement, tons: 3,600 full load
Dimensions, feet (metres): 212.6 × 47.9 × 18 *(64.8 × 14.6 × 5.5)*
Main machinery: 2 diesels; 5,000 hp(m) *(3.7 MW)*; 2 shafts
Speed, knots: 12
Guns: 2—30 mm (twin). 8—14.5 mm (2 quad) MGs.

Comment: First one built at Oltenitza Shipyard and commissioned 29 June 1993. Second of class completed in 1995. Based at Constanta.

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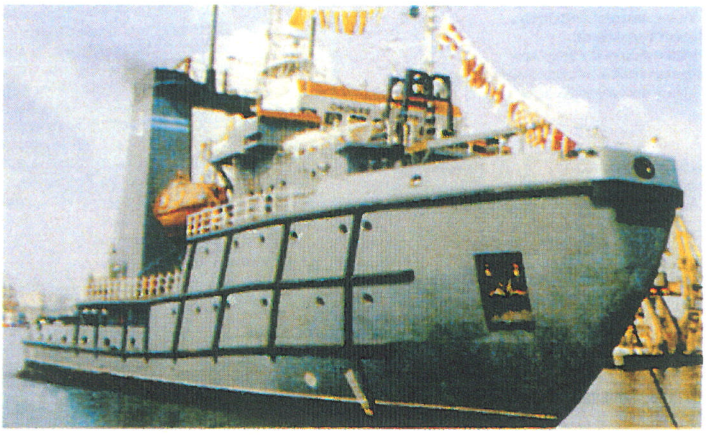
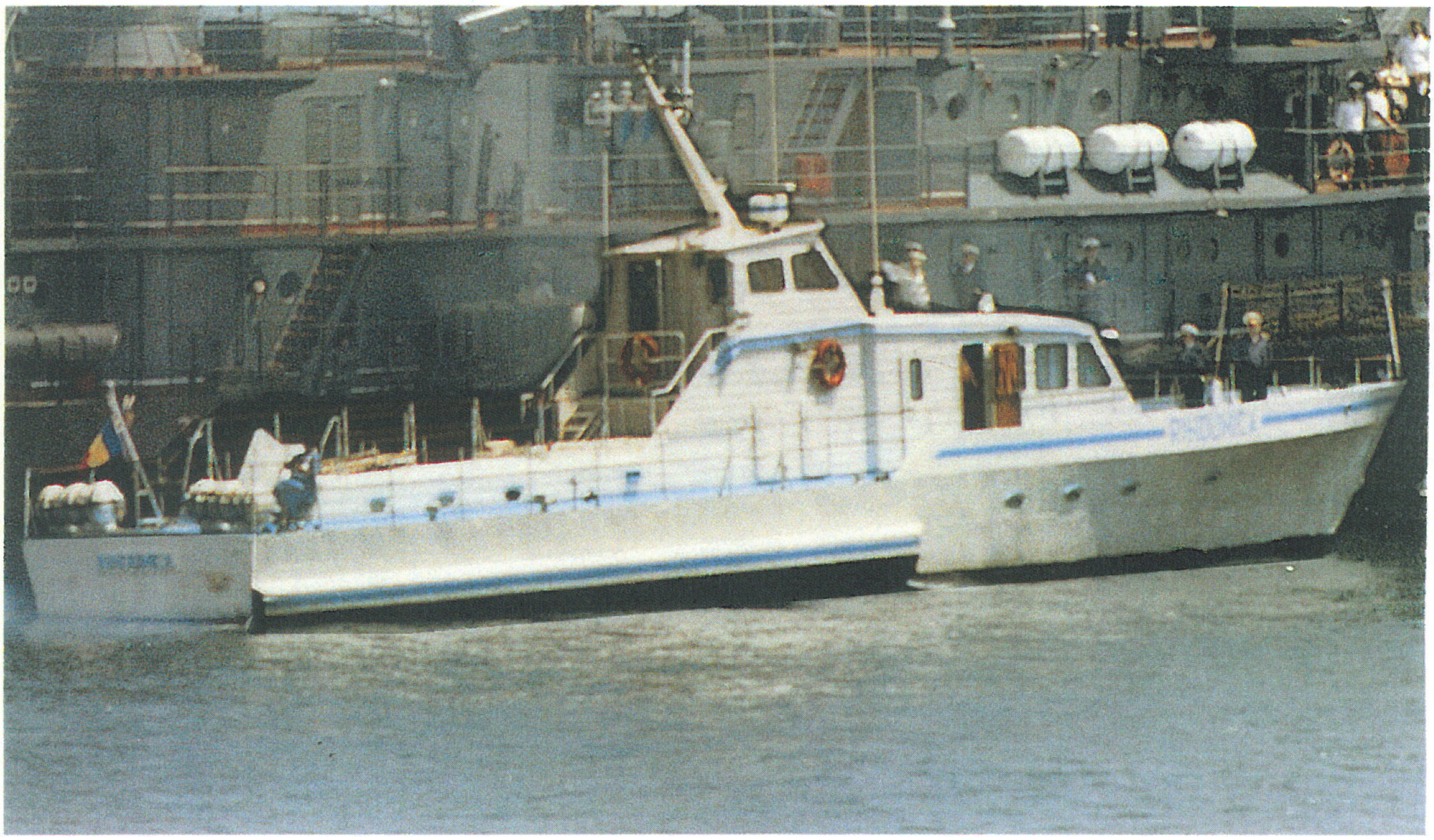


GROZAVU *2001, Romanian Navy* / 0114543



RINDUNICA *1/1995* / 0081637

Russian Federation

ROSIYSKIY VOENNOMORSKY FLOT

Country Overview

Formerly a constituent republic of the Soviet Union, the Russian Federation was established as an independent state in 1991. The largest country in the world with an area of 6,592,850 square miles, it is bordered to the south by North Korea, China, Mongolia, Kazakhstan, Azerbaijan and Georgia and to the west by Norway, Finland, Latvia, Estonia, Ukraine and Belarus, which with Lithuania separates the Kaliningrad oblast (formerly Königsberg) from the rest of Russia. It has a 20,331 n mile coastline with the Arctic and Pacific Oceans and the Caspian, Baltic and Black Seas. These three seas are inter-connected by an extensive inland waterway system whose main components are the Volga and Don rivers, the Volga-Don canal and the Volga-Baltic Waterway. A canal also links the system to the capital and largest city, Moscow. The Amur River is the most important navigable river in the far east region. Offshore, principal islands in the Arctic Ocean include the Franz Josef Land and Severnaya Zemlya archipelagos, Novaya Zemlya, Vaygach Island, the New Siberian Islands and Wrangel Island. In the Pacific lie the Kuril Islands, which extend from the Kamchatka Peninsula, and Sakhalin Island. Principal seaports include Novorossiysk (Black Sea), St Petersburg and Kaliningrad (Baltic), Nakhodka, Vostochnyy, Vladivostok, and Vanino (Pacific) and Murmansk and Archangel (Arctic). Major river ports include Rybinsk, Nizhniy Novgorod, Samara, Volgograd, Astrakhan and Rostov-on-Don. Territorial waters (12 n miles) are claimed. An EEZ (200 n miles), is also claimed and the limits have been partly defined by boundary agreements.

Headquarters Appointments

Commander-in-Chief and Deputy Minister of Defence:
Admiral of the Fleet V Kuroyedov
Chief of Naval Staff:
Admiral I N Khmelnov
Deputy Chief of Naval Staff:
Vice Admiral A Pobozhiy
Chief of Operations:
Vice Admiral V Patrushev
Commander Naval Units Border Guard:
Vice Admiral I I Nalyotov

Northern Fleet
Commander:
Admiral G Suchkov

Pacific Fleet
Commander:
Admiral V Zakharenko

Black Sea Fleet
Commander:
Vice Admiral V Komoyedov

Baltic Fleet
Commander:
Admiral V Valuyev

Caspian Flotilla
Commander:
Vice Admiral B M Zinin

Personnel

(a) 2004: 161,000 including naval aviation and naval infantry. The approximate division is 55,000 in the North, 45,000 in the Pacific, 30,000 in the Baltic, 23,000 in the Black Sea and 8,000 in the Caspian.
(b) Approximately 30 per cent volunteers (officers and senior ratings) — remainder two years' national service (or three years if volunteered)

Associated Navies

The Soviet Union was dissolved in December 1991. In 1992 a Commonwealth of Independent States was formed from the Republics of the former Union, but without the Baltic States. In the Baltic the Russian flotilla had withdrawn from the former East German and Polish ports by 1993 and from the Baltic Republics by the end of 1994. The Caspian flotilla divided with some units going to Azerbaijan, Kazakhstan and Turkmenistan. In the Black Sea the division of the Fleet between Russia and Ukraine was finally implemented in 1997. Facilities are shared in some Crimean ports.

Main Bases

North: Severomorsk (HQ), Motovsky Gulf, Polyarny, Severodvinsk, Gremika, Nerpichya, Yagelnaya, Olenya
Baltic: Kaliningrad (HQ), St Petersburg, Kronshtadt, Baltiysk
Black Sea: Sevastopol (HQ) (Crimea), Tuapse, Novorssiysk, Feodosiya
Caspian: Astrakhan (HQ), Makhachkala
Pacific: Vladivostok (HQ), Sovetskaya Gavan, Magadan, Petropavlovsk, Komsomolsk, Racovaya

Operational

From 1991 a shortage of funds to pay for dockyard repairs, spare parts and fuel meant that many major surface warships were rarely at sea, and few operated away from their local exercise areas. Activity levels rose from 1996 but many ships, although technically in commission, remained in harbour. More recently, improvements in the budgetary situation and the publication of a new naval doctrine have led to a higher operational tempo. In 2002, there were out of area deployments from each fleet and the largest joint exercise in a decade took place in the Caspian Sea. In 2003, the Pacific Fleet is to conduct a major readiness exercise that will include nuclear forces.

Coast Defence

The Command of Naval Infantry and Coastal Artillery and Missiles includes a Division of Coastal Artillery and three Mechanised Infantry (Coastal Defence Troops) Brigades, an Artillery Self-Propelled Brigade, plus the units of Naval Infantry (five Brigades and one Division) and a number of minor units. The force of Coastal Artillery includes 19 Missile Batallions (SSC-1 Sepal SS-C-3 Styx) and 11 Gun Batallions (130 mm and 152 mm). Many of these units are in reserve. The Naval Infantry were deployed in Chechnya in 2000.

Pennant Numbers

There have been no major changes to pennant numbers since 1993 except when ships transfer fleets. Some submarines have temporary numbers on the side of the fin.

Class and Weapon Systems Names

Most Russian ship class names differ from those allocated by NATO. In such cases the Russian name is placed in brackets after the NATO name. Type or Project numbers are also placed in brackets. Weapon systems retain their NATO names with the Russian name, when known, placed in brackets. Some equipment now has three names — NATO, Russian Navy and Russian export.

Civilian Support Ships

Previously, civilian manned research ships and some icebreakers were effectively under naval control and were therefore included in the former Soviet/Russian section. These ships have been removed as all are now employed solely for commercial purposes.

Strength of the Fleet

Type	*Active*	*Building*
Submarines (SSBN)	16	(1)
Submarines (SSGN/SSN)	23	3
Submarines (SSK)	13	1
Auxiliary Submarines (SSA(N))	9	1
Aircraft Carriers (CV)	1	–
Battle Cruisers (CGN)	1	–
Cruisers (CG)	4	–
Destroyers (DDG)	16	–
Frigates (FFG)	10	–
Frigates (FF and FFL)	33	–
Corvettes	38	11
Patrol Forces	6	1
Minesweepers—Ocean	10	1
Minesweepers—Coastal	30	–
LPDs	1	–
LSTs	21	–
Hovercraft (Amphib)	16	–
Replenishment Tankers	18	–
Hospital Ships	3	–

Notes: There are large numbers of most classes 'in reserve', and flying an ensign so that skeleton crews may still be paid. The list above reflects only those units assessed as having some realistic operational capability or some prospect of returning to service after refit.

TORPEDOES

Notes: There are several torpedo types in service. The following table lists characteristics.

Type/Designator	*Diameter/Length*	*Role*	*Launch Platform*	*Propulsion*	*Speed/Range*	*Guidance*	*Warhead*	*Remarks*
35 (APR-2)	35 cm/3.7 m	ASW	1. Aircraft 2. Helicopters	Rocket	62 kt/2 km	Active/passive	100 kg	Export as APR-2E
APR-3	35 cm/3.7 m	ASW	1. Aircraft 2. Helicopters	Waterjet	100 kt	Active/passive	76 kg	Under development
SET-72	40 cm/4.5 m	ASW/ASV	1. Submarines 2. Escorts	Electric	30 kt/10 km	Active/passive	100 kg	Upgraded version of USET-95 (see Note 1)
UMGT-1M (E40-79)	40 cm/3.8 m	ASW	1. Aircraft 2. Helicopters 3. SS-N-14 4. SS-N-15 5. SS-N-16	Electric	40 kt/15 km	Active/passive	60 kg	Export as APSET-95 or UMGT-1ME
VTT-1 (E45-75)	45 cm/3.9 m	ASW	1. Aircraft 2. Helicopters	Electric	30 kt/8 km	Active/passive	90 kg	
AT-2 (E53-72)	53 cm/4.7 m	ASW	1. Aircraft 2. Helicopters 3. SS-N-14	Electric	40 kt/10 km	Active/passive	80 kg	Alternative to Type 40
SAET-60 M (ET-80A)	53 cm/7.8 m	ASV	1. Submarines 2. Surface ships	Electric	40 kt/15 km	Passive	205 kg	Nuclear variant available
SET 65M (E53-76) (see Note 2)	53 cm/7.8 m	ASW	1. Submarines 2. Surface ships	Electric	40 kt/15 km	Active/passive	205 kg	Export as SET-65E/92 K
TEST-71 (see Note 3)	53 cm/8.2 m	ASW	1. Submarines 2. Surface ships	Electric	40 kt/15 km 25 kt/20 km	Active/passive Wire-guided	220 kg	Export as TEST-71ME
USET/-80	53 cm/8.2 m	ASW	1. Submarines 2. Surface ships	Electric	45 kt/19 km	Active/passive and wake homing	250 kg	TE-2 is wire-guided variant for Type 636 SSKs
53-65	53 cm/7.8 m	ASV	1. Submarines 2. Surface ships	Turbine	45 kt/19 km	Wake	305 kg	Nuclear variant (53-68) available
65 (65-76) (note 5)	65 cm/11 m	ASV	Submarines (Victor III, Akula, Sierra, Oscar)	Turbine	50 kt/50 km	Wake	450 kg	Nuclear variant available. Export as DT or DST
Shkval (VA III)	53 cm/8 m	ASW/ASV	Submarines Surface ships	Rocket	200 kt/10 km	Gyro	210 kg	Export non-nuclear as Shkval-E Nuclear variant available

Notes: (1) Export USET-95 has ASV wake homing option. Also known as Latush.
(2) SET-65M superseded by torpedo promoted for export as SET-92K (53 cm/7.8 m, ASW, active/passive).
(3) TEST-71 superseded by torpedo promoted for export as TEST-96 (53 cm/8 m, ASW/ASV, wire-guided, active/passive/wake homing) (submarines and surface ships).
(4) MG 34/44 are torpedo tube launched acoustic countermeasures. Run time is advertised as 45 minutes.
(5) This HTP fuelled torpedo removed from service following the *Kursk* disaster.

Fleet Disposition (1 January 2004)

Type	*Northern*	*Baltic*	*Black Sea*	*Pacific*	*Caspian*
SSBN	11	–	–	5	–
SSGN/SSN	16	–	–	7	–
SSK	7	2	1	3	–
SSA(N)	9	–	–	–	–
CV	1	–	–	–	–
CGN	1	–	–	–	–
CG	1	–	2	1	–
DDG	7	2	1	6	–
FFG	3	3	2	1	1
FF and FFL	9	11	6	7	–
Corvettes	5	13	5	16	1
LPD	1	–	–	–	–
LST	4	5	6	5	–

Notes: MCMV are divided evenly between the four main Fleets plus a few in the Caspian Sea.

DELETIONS

Notes: Some of the ships listed are still theoretically 'laid up', and some still fly an ensign so that skeleton crews may be paid.

Submarines

2001 1 Delta I (SSBN), 1 Akula I (SSN)
2002 1 Delta IV (SSBN), 2 Victor III (SSN), 4 Tango, 1 Foxtrot
2003 1 Delta I

Cruisers

2003 1 Kynda (*Admiral Golovko*)

Destroyers

2001 1 Mod Kashin *(Sderzhanny)*

Frigates

2001 1 Grisha III, 3 Grisha V
2002 1 Grisha IV, 1 Krivak (*Druzhny*)

Corvettes (Missile)

2001 2 Tarantul I, 3 Tarantul II, 3 Tarantul III, 3 Nanuchka III
2002 1 Tarantul I

Patrol Forces

2001 6 Muravey, 7 Svetlyak
2002 1 Ivan Susanin, 1 Matka, 2 Turya, 7 Yaz, 1 Piyavka, 5 Shmel, 2 Vosh

Mine Warfare Vessels

2001 5 Natya I, 6 Sonya, 3 Tolya, 2 Olya, 6 Tanya
2002 1 Natya I

Amphibious Forces

2001 3 Ropucha I, 1 Pomornik (to Greece), 2 Aist

AGIs

2001 *Kareliya*
2002 SSV 590, SSV 591

Naval Survey and Research Ships

2001 *Stvor, Tayga, Donuzlav,* SSV 328, 3 Biya, 1 Kamenka
2002 1 Moma

Auxiliaries

2001 1 Ugra, 2 Amur I, 1 Oskol, 3 Mod Altay, 2 Uda, 1 Goryn, 2 Sorum, 2 Okhtensky

PENNANT LIST

Submarines
Ballistic Missile Submarines

Typhoon class

TK 17	Archangelsk
TK 29	Severstal
TK 208	Dmitry Donskoy

Delta IV class

K 18	Karelia
K 51	Verchoture
K 84	Ekaterinburg
K 114	Tula
K 117	Briansk
K 407	Novomoskvosk

Delta III class

K 44	Borisoglebsk
K 180	Syvatoy Giorgiy Pobedonosets
K 211	Podolsk
K 433	Ryazan
K 490	Voskresensk
K 496	Zelenograd
K 506	Petrapavlovsk-Kamchatsky

Attack Submarines

Oscar II class

K 119	Voronezh
K 132	Irkutsk
K 186	Omsk
K 266	Orel
K 410	Smolensk
K 442	Cheliabinsk
K 526	Tomsk

Yasen class

K 329	Severodvisnk (bldg)

Akula I and II classes

K 152	Nerpa (bldg)
K 154	Tigr
K 157	Vepr
K 267	Samara
K 328	Leopard
K 331	Magadan
K 335	Gepard
K 337	Cougar (bldg)
K 419	Kuzbass
K 461	Volk

Sierra I and II classes

K 276	Kostroma
K 336	Pskow

Victor III class

B 138	Obninsk
B 292	Perm
B 388	Snezhnogorsk
B 414	Danil Moskovskiy
B 448	Tambov

Yankee Notch

K 395	-

Auxiliary Submarines

BS 129	-
AS 13	-
AS 14	-
AS 15	-
KS 403	Kazan
KS 411	Orienburg

Patrol Submarines

S 100	Saint Petersburg (bldg)
B 177	-
B 227	-
B 248	-
B 260	Razboynik
B 345	-
B 401	Novosibirsk
B 402	Vologda
B 437	Magnetogorsk
B 459	Lipetsk
B 471	-
B 800	Kaluga
B 806	-
B 871	-

Aircraft Carriers

063	Admiral Kuznetsov

Battle Cruisers

099	Pyotr Velikiy

Cruisers

011	Varyag
055	Marshal Ustinov
121	Moskva
713	Kerch

Destroyers

400	Vitse admiral Kulakov
434	Besstrashny
543	Marshal Shaposhnikov
548	Admiral Panteleyev
564	Admiral Tributs
572	Admiral Vinogradov
605	Admiral Levchenko
610	Nastoychivy
619	Severomorsk
620	Bespokoiny
650	Admiral Chabanenko
678	Admiral Kharlamov
687	Marshal Vasilevsky
715	Bystry
778	Burny
810	Smetlivy

Frigates

-	Steregushchiy (bldg)
691	Tatarstan
052	Vorovsky (BG)
060	Anadyr (BG)
097	Dzerzhinksky (BG)
103	Kedrov (BG)
104	Pskov (BG)
113	Menzhinsky (BG)
156	Orel (BG)
661	Letuchy
702	Pylky
712	Neustrashimy
731	Neukrotimy
801	Ladny
808	Pytlivy
930	Legky
937	Zharky
955	Zadorny

Corvettes

409	Moroz
423	Smerch
450	Razliv
505	Uragan
520	Rassvet
526	Nakat
533	Tusha
535	Aysberg
551	Liven
555	Geyzer
560	Zyb
570	Passat
590	Meteor
615	Bora
616	Samum
617	Mirazh
620	Shtyl

Mine Warfare Forces

610	Svyazist
718	MT 265
738	MT 264
762	V Gumavenko
770	Valentin Pikul
-	Vitse admiral Zacharin
806	Motorist
834	Pulemetchik
855	Kontradmiral Vlasov
901	A Zheleznyakov
913	Kovrovets

Amphibious Forces

012	Olenegorskiy Gorniak
016	Georgiy Pobedonosets

Amphibious Forces — *continued*

020	Mitrofan Moskalenko
027	Kondopoga
031	Alexander Otrakovskiy
055	BDK-98
066	Mukhtar Avezov
070	Bobruysk
077	Nikolay Korsakov
081	Nikolay Vilkov
102	Kaliningrad
110	Alexander Shabalin
119	Minsk
125	BDK-105
127	Minsk
130	Korolev
148	Nicolay Obyekov
150	BDK-65
151	Azov
152	Nikolay Filchenkov
156	Yamal
158	Tsesar Kunikov

Auxiliaries

SFP 177	Akademik Isanin
SFP 183	Akademir Seminikhin
200	Perekop
208	Sevan
210	Smolny
212	Yamal
506	Dauriya
SB 921	Paradoks
SB 922	Shakhter

Intelligence Collection Ships

GS 39	Syzran
SSV 080	Pribaltika
SSV 169	Tavriya
SSV 175	Odograf
SSV 201	Priazove
SSV 208	Kurily
SSV 231	Vassily Tatischev
SSV 520	Meridian
SSV 535	Kareliya
SSV 571	Belomore

SUBMARINES

Notes: Temporary pennant numbers are shown on the fins of some submarines.

Strategic Missile Submarines (SSBN)

Notes: A 'Borey' (Project 955) class submarine *Yuri Dolgoruky* was laid down on 2 November 1996. The plan was to fit a new strategic missile SS-NX-28. When , following three unsuccessful tests, this missile programme was cancelled in 1998, construction of the boat slowed and then stopped. Meanwhile development of a new missile, a navalised version of the SS-27 Topol-M, known as 'Bulava', was initiated. It is now likely that trials of this missile will begin in 2005 using the recently refitted 'Typhoon' class SSBN, *Dmitriy Donskoy*, as a platform. This suggests that a new strategic submarine is unlikely to enter service before 2008. This may be a modified version of the original Project 955 or a completely new design to accommodate the smaller 47 tonne 'Bulava'. In the meantime, a force level of 12-15 SSBNs is likely to be maintained.

3 TYPHOON (AKULA) CLASS (PROJECT 941/941U) (SSBN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
DMITRIY DONSKOY	TK 208	Severodvinsk Shipyard	30 June 1976	23 Sep 1979	12 Dec 1981
ARCHANGELSK	TK 17	Severodvinsk Shipyard	24 Feb 1985	Aug 1986	6 Nov 1987
SEVERSTAL	TK 20	Severodvinsk Shipyard	6 Jan 1986	July 1988	4 Sep 1989

Displacement, tons: 18,500 surfaced; 26,500 dived
Dimensions, feet (metres): 562.7 oa; 541.3 wl × 80.7 × 42.7 *(171.5; 165 × 24.6 × 13)*
Main machinery: Nuclear; 2 VM-5 PWR; 380 MW; 2 GT3A turbines; 81,600 hp(m) *(60 MW)*; 2 emergency motors; 517 hp(m) *(380 kW)*; 2 shafts; shrouded props; 2 thrusters (bow and stern); 2,860 hp(m) *(1.5 MW)*
Speed, knots: 25 dived; 12 surfaced
Complement: 175 (55 officers)

Missiles: SLBM: 20 Makeyev SS-N-20 (RSM 52/3M20) Sturgeon; three-stage solid fuel rocket; stellar inertial guidance to 8,300 km *(4,500 n miles)*; warhead nuclear 10 MIRV each of 200 kT; CEP 500 m. 2 missiles can be fired in 15 seconds.
SAM: SA-N-8 SAM capability when surfaced.
A/S: Novator SS-N-15 Starfish; inertial flight to 45 km *(24.3 n miles)*; warhead nuclear 200 kT or Type 40 torpedo.
Torpedoes: 6—21 in *(533 mm)* tubes. Combination of torpedoes (see table at front of section). The weapon load includes a total of 22 torpedoes and A/S missiles.
Mines: Could be carried in lieu of torpedoes.

Countermeasures: Decoys: MG 34/44 tube launched decoys.
ESM: Rim Hat (Nakat M); radar warning. Park Lamp D/F.
Weapons control: 3R65 data control system.
Radars: Surface search: Snoop Pair (Albatros); I/J-band.
Sonars: Shark Gill; hull-mounted; passive/active search and attack; low/medium frequency.
Shark Rib flank array; passive; low frequency.
Mouse Roar; hull-mounted; active attack; high frequency.
Pelamida towed array; passive search; very low frequency.

Modernisation: First of class TK 208 started refit at Severodvinsk in 1994 and was relaunched on 26 June 2002. It is expected to serve as a trials platform for the new 'Bulava' strategic missile system and subsequently as an operational unit. TK 17 and TK 20 may be similarly upgraded to remain in service beyond 2010.

Structure: This is the largest type of submarine ever built. Two separate 7.2 m diameter hulls covered by a single outer free-flood hull with anechoic Cluster Guard tiles plus separate 6 m diameter pressure-tight compartments in the fin and fore-ends. There is a 1.2 m separation between the outer and inner hulls along the sides. The unique features of Typhoon are her enormous size and the fact that the missile tubes are mounted forward of the fin. The positioning of the launch tubes mean a fully integrated weapons area in the bow section leaving space abaft the fin for the provision of two nuclear reactors, one in each hull. The fin configuration indicates a designed capability to break through ice cover up to 3 m thick; the retractable forward hydroplanes, the rounded hull and the shape of the fin are all related to under-ice operations. Diving depth, 1,000 ft *(300 m)*.

Operational: Strategic targets are within range from anywhere in the world. Two VLF/ELF communication buoys are fitted. VLF navigation system for under-ice operations. Pert Spring SATCOM mast, Cod Eye radiometric sextant and Kremmny 2 IFF. All based in the Northern Fleet at Litsa Guba. Of six boats completed, the second and third, TK 202 and TK 12 have been formally decommissioned while the fourth of class TK 13 is expected to follow. TK 17 was damaged by fire during a missile loading accident in 1991 but was subsequently repaired. Old hulls are being disposed of under the Co-operative Threat Reduction Programme.

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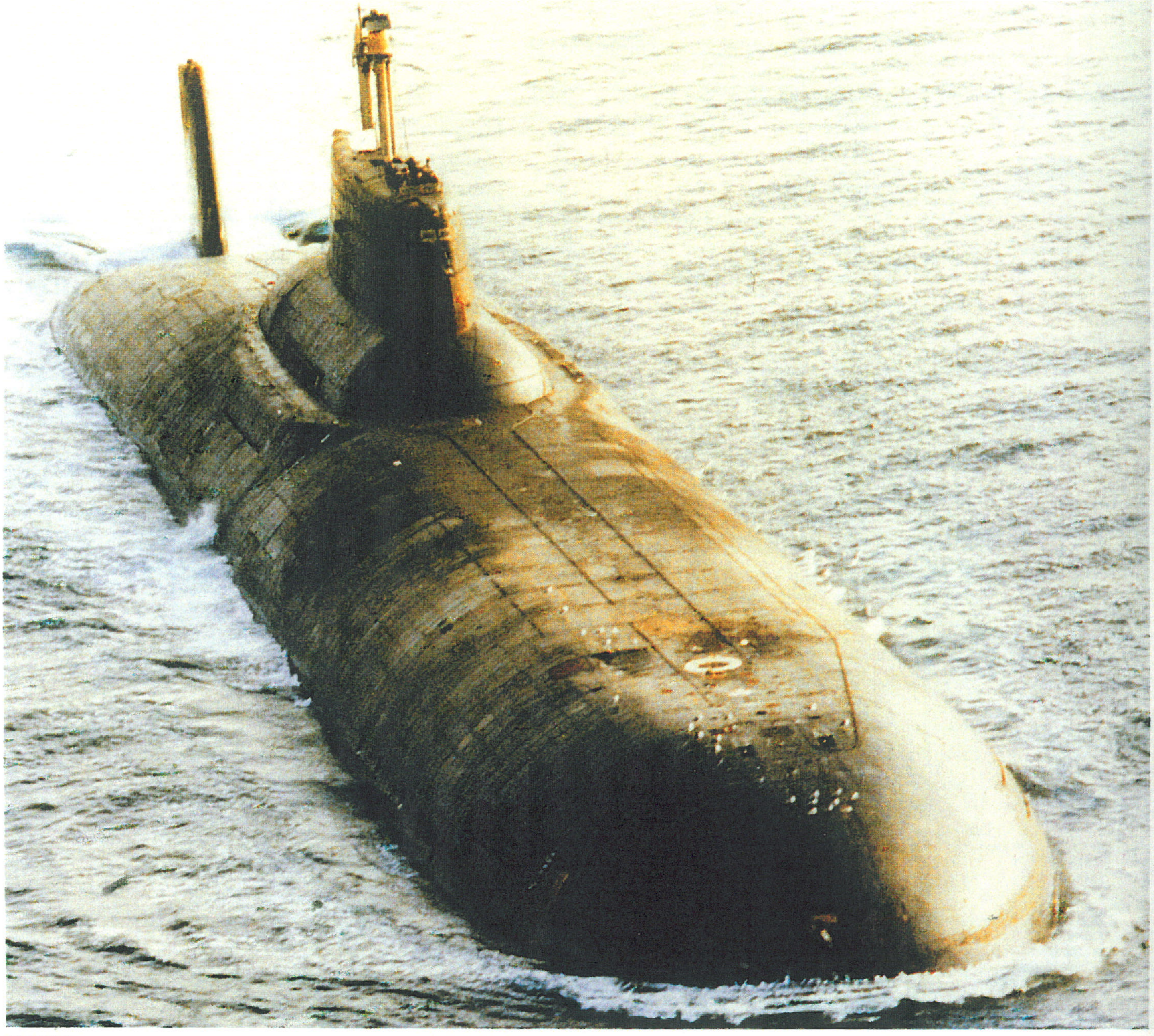

SEVERSTAL

1/1997 / 0081639

6 DELTA IV (DELFIN) CLASS (PROJECT 667BDRM) (SSBN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
VERCHOTURE	K 51	Severodvinsk Shipyard	23 Feb 1981	Jan 1984	29 Dec 1984
EKATERINBURG	K 84	Severodvinsk Shipyard	Nov 1983	Dec 1984	Feb 1985
TULA	K 114	Severodvinsk Shipyard	Dec 1985	Sep 1986	Jan 1987
BRIANSK	K 117	Severodvinsk Shipyard	Sep 1986	Sep 1987	Mar 1988
KARELIA	K 18	Severodvinsk Shipyard	Sep 1987	Nov 1988	Sep 1989
NOVOMOSKOVSK	K 407	Severodvinsk Shipyard	Nov 1988	Oct 1989	1991

Displacement, tons: 10,800 surfaced; 13,500 dived
Dimensions, feet (metres): 544.6 oa; 518.4 wl × 39.4 × 28.5 *(166; 158 × 12 × 8.7)*
Main machinery: Nuclear; 2 VM-4 PWR; 180 MW; 2 GT3A-365 turbines; 37,400 hp(m) *(27.5 MW)*; 2 emergency motors; 612 hp(m) *(450 kW)*; 2 shafts
Speed, knots: 24 dived; 14 surfaced
Complement: 130 (40 officers)

Missiles: SLBM: 16 Makeyev SS-N-23 (RSM 54) Skiff (Shtil); 3-stage liquid fuel rocket; stellar inertial guidance to 8,300 km *(4,500 n miles)*; warhead nuclear 4-10 MIRV each of 100 kT; CEP 500 m. Same diameter as SS-N-18 but longer.
A/S: Novator SS-N-15 Starfish; inertial flight to 45 km *(24.3 n miles)*; warhead nuclear 200 kT or Type 40 torpedo.
Torpedoes: 4—21 in *(533 mm)* tubes. Combination of 53 cm torpedoes (see table at front of section). Total of 18 weapons.
Countermeasures: ESM: Brick Pulp/Group; radar warning. Park Lamp D/F.

Radars: Surface search: Snoop Tray; I-band.
Sonars: Shark Gill; hull-mounted; passive/active search and attack; low/medium frequency.
Shark Hide flank array; passive; low frequency.
Mouse Roar; hull-mounted; active attack; high frequency.
Pelamida towed array; passive search; very low frequency.

Programmes: Construction first ordered 10 December 1975. This programme completed in late 1990 and included seven boats.
Structure: A slim fitting is sited on the after fin which is reminiscent of a similar tube in one of the 'November' class in the early 1980s. This is a dispenser for a sonar thin line towed array. The other distinguishing feature, apart from the size being greater than Delta III, is the pressure-tight fitting on the after end of the missile tube housing, which may be a TV camera to monitor communications buoy and wire retrieval operations. This is not fitted in all of the class. Brick Spit optronic mast. Diving depth, 1,300 ft *(400 m)*. The outer casing has a continuous acoustic coating and fewer free flood holes than the Delta III.
Operational: Two VLF/ELF communication buoys. Navigation systems include SATNAV, SINS, Cod Eye. Pert Spring SATCOM. A modified and more accurate version of SS-N-23 was tested at sea in 1988 bringing the CEP down from 900 to 500 m. These improvements are likely to be incorporated in the 'Sineva' missile, which is planned to be fitted throughout the class. Missile launch is conducted at keel depth 55 m and at a speed of 6 kt. All operational units based in the Northern Fleet at Saida Guba. K 51 completed a long refit in 1999 and K 84 in 2002. K 114 started refit at Severodvinsk in 2000 and was joined by K 117 in 2002. K 18 and K 407 are likely to follow to maintain six boats in service until about 2015. K 64 has been paid off, although such a young hull has the potential to be re-roled for other tasks. K 407 launched a German commercial satellite on 7 July 1998 from the Barents Sea.

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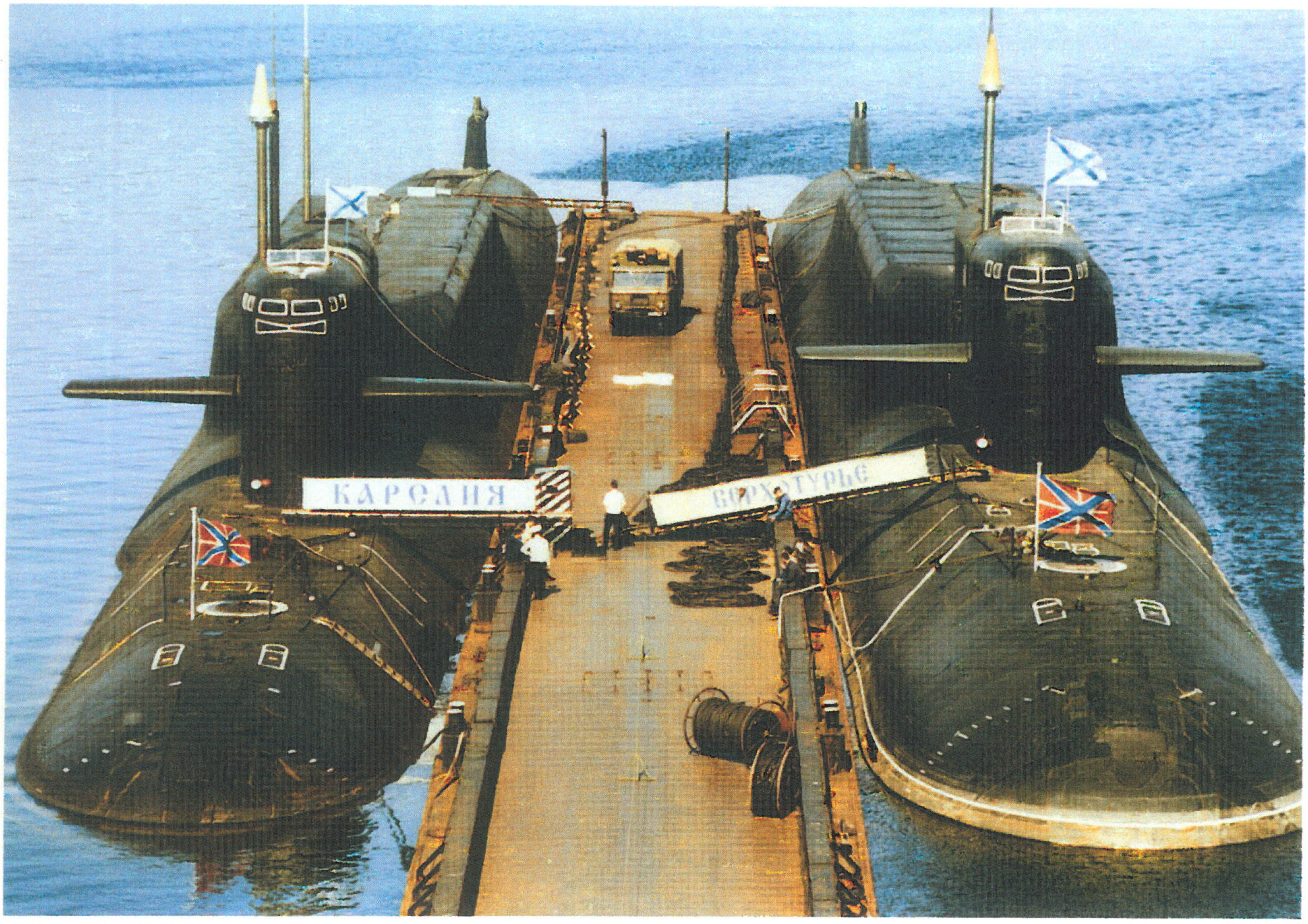
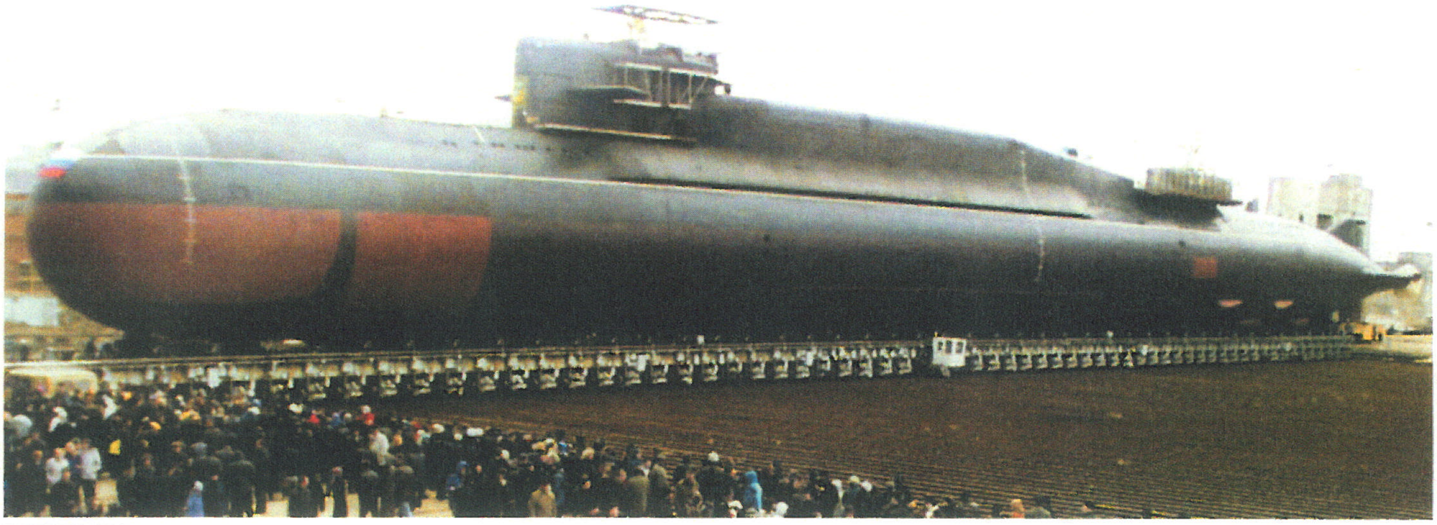


KARELIA and VERCHOTURE

9/2000, B Lemachko / 0126226



EKATERINBURG

4/2002, Ships of the World / 0528287

7 DELTA III (KALMAR) CLASS (PROJECT 667BDR) (SSBN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
VOSKRESENSK	K 490	Severodvinsk Shipyard	Nov 1976	Mar 1977	30 Oct 1977
BORISOGLEBSK	K 44	Severodvinsk Shipyard	23 Feb 1977	Aug 1977	Apr 1978
ZELENOGRAD	K 496	Severodvinsk Shipyard	May 1978	Sep 1978	Aug 1979
PETROPAVLOVSK KAMCHATSKY	K 506	Severodvinsk Shipyard	Sep 1978	Mar 1979	Nov 1979
PODOLSK	K 211	Severodvinsk Shipyard	Apr 1979	Dec 1979	Aug 1980
SYVATOY GIORGIY POBEDONOSETS	K 180	Severodvinsk Shipyard	Apr 1980	Nov 1980	Aug 1981
RYAZAN	K 433	Severodvinsk Shipyard	Sep 1981	Mar 1982	Dec 1982

Displacement, tons: 10,550 surfaced; 13,250 dived
Dimensions, feet (metres): 524.9 oa; 498.7 wl × 39.4 × 28.5 *(160; 152 × 12 × 8.7)*
Main machinery: Nuclear; 2 VM-4 PWR; 180 MW; 2 GT3A-635 turbines; 37,400 hp(m) *(27.5 MW)*; 2 emergency motors; 612 hp(m) *(450 kW)*; 2 shafts
Speed, knots: 24 dived; 14 surfaced
Complement: 130 (20 officers)

Missiles: SLBM: 16 Makeyev SS-N-18 (RSM 50) Stingray (Volna); 2-stage liquid fuel rocket with post boost vehicle (PBV); stellar inertial guidance; 3 variants:
Mod 1; range 6,500 km *(3,500 n miles)*; warhead nuclear 3 MIRV each of 200 kT; CEP 900 m.
Mod 2; range 8,000 km *(4,320 n miles)*; warhead nuclear 450 kT; CEP 900 m.
Mod 3; range 6,500 km *(3,500 n miles)*; warhead nuclear 7 MIRV 100 kT; CEP 900 m.
Mods 1 and 3 were the first MIRV SLBMs in Soviet service.
Torpedoes: 4—21 in *(533 mm)* and 2—400 mm tubes. Combination of torpedoes (see table at front of section). Total of 16 weapons.
Countermeasures: ESM: Brick Pulp/Group; radar warning. Park Lamp D/F.
Radars: Surface search: Snoop Tray; I-band.
Sonars: Shark Teeth; hull-mounted; passive/active search and attack; low/medium frequency.
Shark Hide flank array; passive; low frequency.
Mouse Roar; hull-mounted; active attack; high frequency.
Pelamida towed array; passive search; very low frequency.

Modernisation: The dispenser tube on the after fin has been fitted to most of the class. It was planned to retrofit SS-N-23 but this was shelved.

Structure: The missile casing is higher than in 'Delta I' class to accommodate SS-N-18 missiles which are longer than the SS-N-8. The outer casing has a continuous 'acoustic' coating but is less streamlined and has more free flood holes than the Delta IV. Brick Spit optronic mast. Diving depth, 1,050 ft *(320 m)*.

Operational: ELF/VLF communications with floating aerial and buoy; UHF and SHF aerials. Navigation equipment includes Cod Eye radiometric sextant, SATNAV, SINS and Omega. Pert Spring SATCOM. Kremmny 2 IFF. Of the 14 hulls completed, the first of class (K 441) paid of in 1996, three more in 1997 and another two by 1999. Four of these (K 449, K 455, K 487 and K 223) are laid up in fleet bases. The operational state of the remaining seven has been variously reported but it must be assumed that they can still fire missiles even if a sea-going capability is questionable. K 211 is reported to have test-fired an SS-N-18 on 2 September 2003. K 44 and K 433 are based at Saida Guba in the Northern Fleet and remainder at Tarya Bay in the Pacific. The last hull of the class K 129 converted to a DSRV carrier with missile tubes removed.

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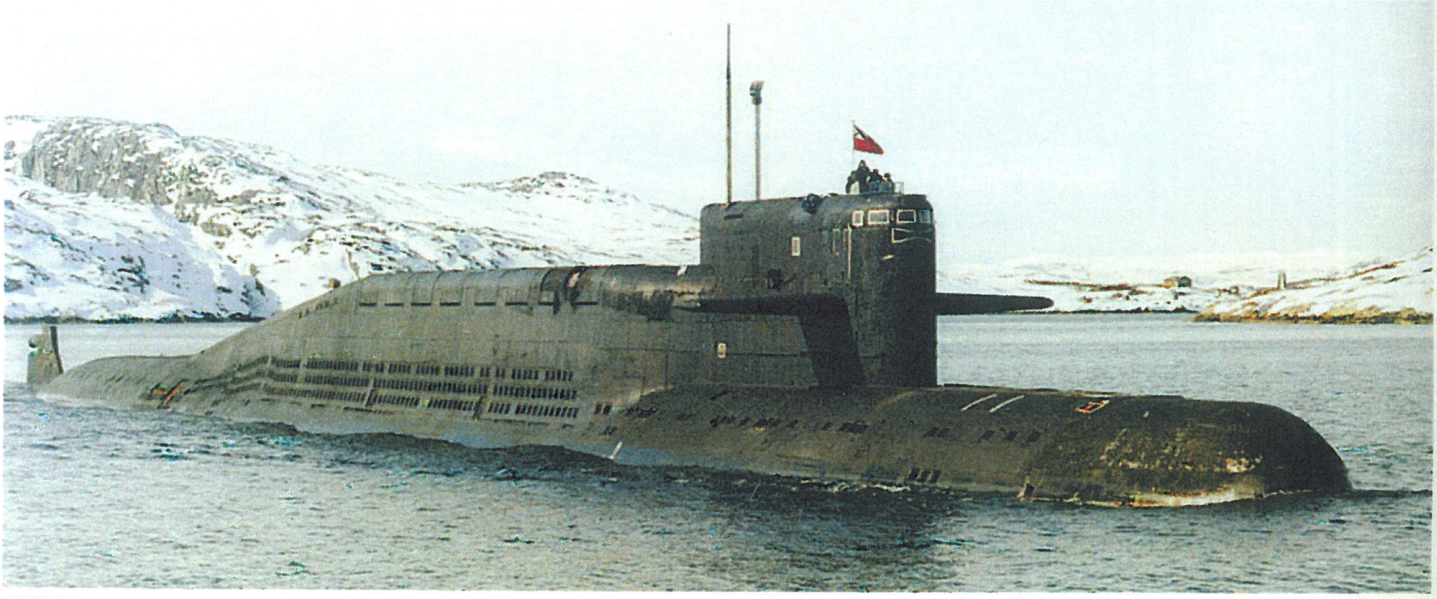
DELTA III
6/1998, S Breyer / 0081641



DELTA III
2000, B Lemachko / 0126264

Attack Submarines (SSN/SSGN)

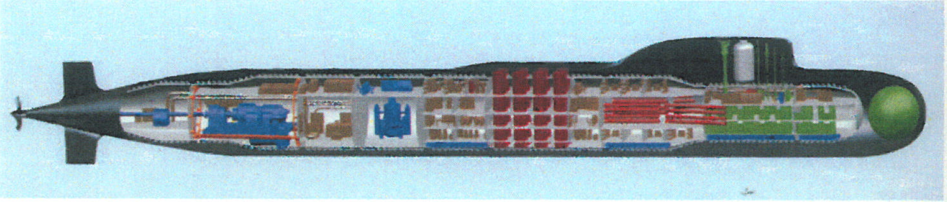
Notes: (1) Attack submarines are coated with Cluster Guard anechoic tiles. All submarines are capable of laying mines from their torpedo tubes. All SSNs are fitted with non-acoustic environmental sensors for measuring discontinuities caused by the passage of a submarine in deep water.
(2) The cost of recovering the wreck of *Kursk* is estimated to have been of the order of US$100 million.

0 + 1 YASEN CLASS (PROJECT 885) (SSN/SSGN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SEVERODVINSK	K 329	Severodvinsk Shipyard	21 Dec 1993	2004	2007

Displacement, tons: 5,900 surfaced; 8,600 dived
Dimensions, feet (metres): 364.2 × 39.4 × 27.6 *(111 × 12 × 8.4)*
Main machinery: Nuclear; 1 PWR; 195 MW; 2 GT3A turbines; 43,000 hp(m) *(31.6 MW)*; 1 shaft; pump-jet propulsor; 2 spinners
Speed, knots: 28 dived; 17 surfaced
Complement: 80 (30 officers)

Missiles: SLCM/SSM: Novator Alfa SS-N-27.
8 VLS launchers in after casing. Total of 24 missiles.
A/S: SS-N-15. Fired from torpedo tubes.
Torpedoes: 8—21 in *(533 mm)* tubes. Inclined outwards. Total of about 30 weapons.
Countermeasures: ESM: Radar warning.
Radars: Surface search: I-band.
Sonars: Irtysh Amfora system includes bow-mounted spherical array; passive/active search and attack; low frequency.
Flank and towed arrays; passive; very low frequency.



SEVERODVINSK
1996, US Navy / 0019006

Programmes: Malakhit design. Confirmed building in 1993. Reported plans were for seven of the class to replace the Victor III class. It was initially reported that these were to be multipurpose SSNs derived from the 'Akula II' class, but the length of the programme suggests that there has been considerable scope for technical upgrade.

Structure: Some of the details given are speculative. VLS launchers for SSMs, canted torpedo tubes and spherical bow sonars are all new to Russian designs.

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1 SIERRA II (KONDOR) CLASS (PROJECT 945B) (SSN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
PSKOW (ex-*Okun*)	K 336	Nizhny Novgorod	May 1990	June 1992	12 Aug 1993

Displacement, tons: 7,600 surfaced; 9,100 dived
Dimensions, feet (metres): 364.2 × 46.6 × 28.9 *(111 × 14.2 × 8.8)*
Main machinery: Nuclear; 1 VM-5 PWR; 190 MW; 1 GT3A turbine; 47,500 hp(m) *(70 MW)*; 2 emergency motors; 2,004 hp(m) *(1.5 MW)*; 1 shaft; 2 spinners; 1,006 hp(m) *(740 kW)*
Speed, knots: 32 dived; 10 surfaced
Complement: 61 (31 officers)

Missiles: SLCM: Raduga SS-N-21 Sampson (Granat) fired from 21 in *(533 mm)* tubes; land-attack; inertial/terrain-following to 3,000 km *(1,620 n miles)* at 0.7 Mach; warhead nuclear 200 kT. CEP 150 m. Flies at a height of about 200 m.
SAM: SA-N-5/8 Strela portable launcher; 12 missiles.
A/S: Novator SS-N-15 Starfish (Tsakra) fired from 53 cm tubes; inertial flight to 45 km *(24.3 n miles)*; warhead nuclear 200 kT or Type 40 torpedo.
Novator SS-N-16 Stallion fired from 65 cm tubes; inertial flight to 100 km *(54 n miles)*; payload nuclear 200 kT (Vodopad) or Type 40 torpedo (Veder).
Torpedoes: 4—25.6 in *(650 mm)* and 4—21 in *(533 mm)* tubes. Combination of 65 and 53 cm torpedoes (see table at front of section). Total of 40 weapons.
Mines: 42 in lieu of torpedoes.
Countermeasures: ESM: Rim Hat; intercept. Park Lamp D/F.
Radars: Surface search: Snoop Pair with back-to-back ESM aerial.
Sonars: Shark Gill; hull-mounted; passive/active search and attack; low/medium frequency.
Shark Rib flank array; passive; low frequency.
Mouse Roar; hull-mounted; active attack; high frequency.
Skat 3 towed array; passive; very low frequency.

Programmes: A third of class K 536 *Mars*, was scrapped before completion in July 1992.
Structure: Titanium hull. The towed communications buoy has been recessed. A 10 point environmental sensor is fitted at the front end of the fin. The standoff distance between hulls is considerable and has obvious advantages for radiated noise reduction and damage resistance. Diving depth, 2,460 ft *(750 m)*. Numbers and sizes of torpedo tubes are uncertain with different figures given by Russian sources.
Operational: Based in the Northern Fleet, at Ara Guba. A second of class (K 534) is laid up but may be returned to service.

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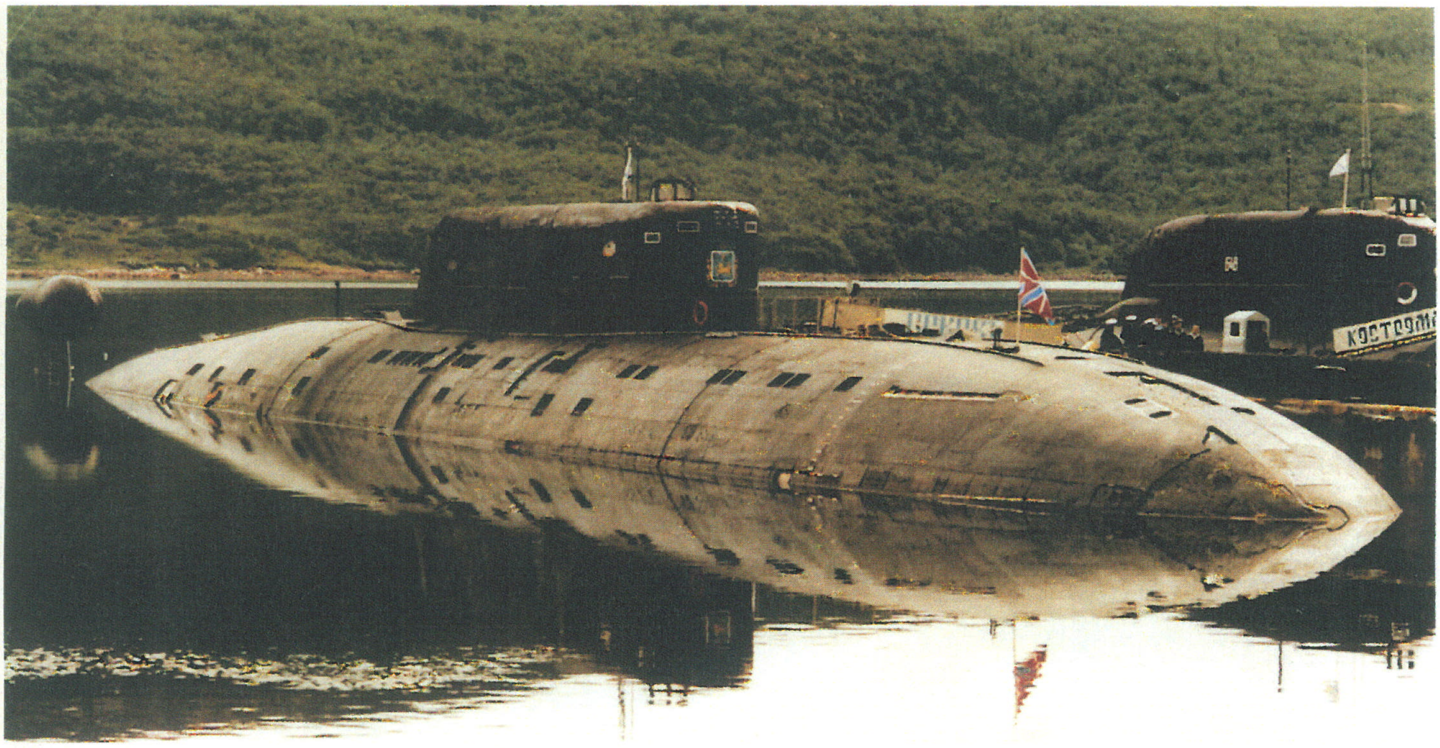
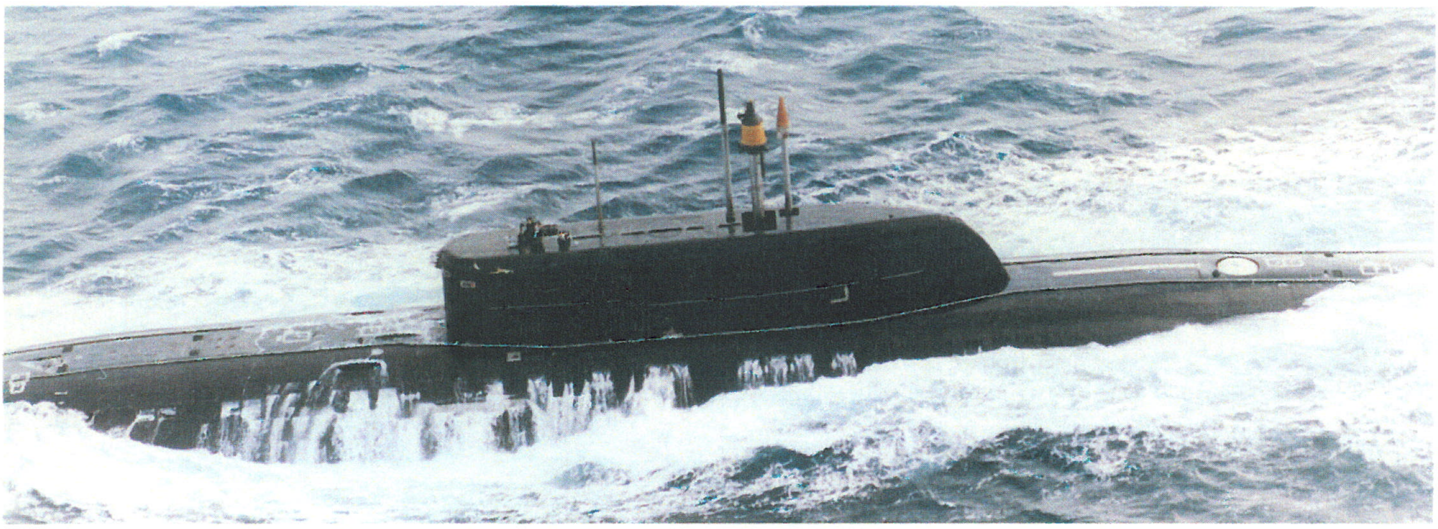
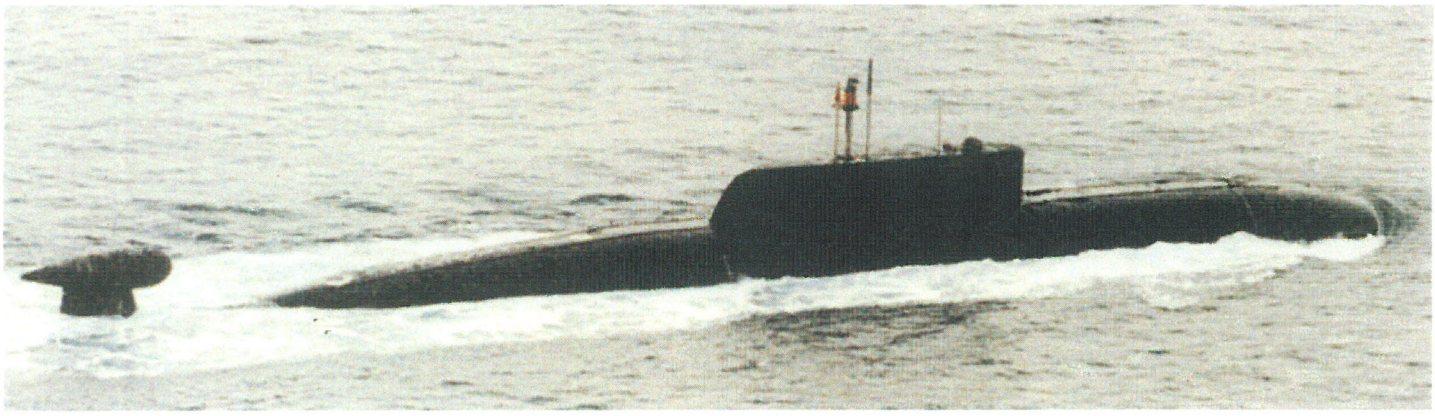


PSKOW *6/2002*, B Lemachko* / 0570928



SIERRA II *6/1997* / 0019009



SIERRA II *8/1998* / 0050009

7 OSCAR II (ANTYEY) (PROJECT 949B) (SSGN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
IRKUTSK	K 132	Severodvinsk Shipyard	1983	1986	1987
VORONEZH	K 119	Severodvinsk Shipyard	1984	1986	1988
SMOLENSK	K 410	Severodvinsk Shipyard	1986	1988	1990
CHELIABINSK	K 442	Severodvinsk Shipyard	1987	1989	29 Dec 1990
OREL (ex-*Severodvinsk*)	K 266	Severodvinsk Shipyard	1989	22 May 1992	Dec 1992
OMSK	K 186	Severodvinsk Shipyard	1990	8 May 1993	15 Dec 1993
TOMSK	K 526	Severodvinsk Shipyard	1993	18 July 1996	28 Feb 1997

Displacement, tons: 13,900 surfaced; 18,300 dived
Dimensions, feet (metres): 505.2 × 59.7 × 29.5 *(154 × 18.2 × 9)*
Main machinery: Nuclear; 2 VM-5 PWR; 380 MW; 2 GT3A turbines; 98,000 hp(m) *(72 MW)*; 2 shafts; 2 spinners
Speed, knots: 28 dived; 15 surfaced
Complement: 107 (48 officers)

Missiles: SSM: 24 Chelomey SS-N-19 Shipwreck (Granit); inertial with command update guidance; active radar homing to 20-550 km *(10.8-300 n miles)* at 2.5 Mach; warhead 750 kg HE or 500 kT nuclear. Novator Alfa SS-N-27 may be carried in due course.
A/S: Novator SS-N-15 Starfish (Tsakra) fired from 53 cm tubes; inertial flight to 45 km *(24.3 n miles)*; warhead nuclear 200 kT or Type 40 torpedo.
Novator SS-N-16 Stallion fired from 65 cm tubes; inertial flight to 100 km *(54 n miles)*; payload nuclear 200 kT (Vodopad) or Type 40 torpedo (Veder).
Torpedoes: 4—21 in *(533 mm)* and 2—26 in *(650 mm)* tubes. Combination of 65 and 53 cm torpedoes (see table at front of section). Total of 28 weapons including tube-launched A/S missiles.
Mines: 32 can be carried.
Countermeasures: ESM: Rim Hat; intercept.
Weapons control: Punch Bowl for third party targeting.
Radars: Surface search: Snoop Pair or Snoop Half; I-band.
Sonars: Shark Gill; hull-mounted; passive/active search and attack; low/medium frequency.
Shark Rib flank array; passive; low frequency.
Mouse Roar; hull-mounted; active attack; high frequency.
Pelamida towed array; passive search; very low frequency.

Programmes: Building of a class of 14 began in 1978. Two Oscar Is and 11 Oscar IIs were completed. Work on the 12th Oscar II (K 139, *Belgorod*) was thought to have stopped but construction may have restarted.
Structure: SSM missile tubes are in banks of 12 either side and external to the 8.5 m diameter pressure hull; they are inclined at 40° with one hatch covering each pair, the whole resulting in the very large beam. The position of the missile tubes provides a large gap of some 4 m between the outer and inner hulls. Diving depth, 1,000 ft *(300 m)* although 2,000 ft *(600 m)* is claimed. There are 10 watertight compartments.
Operational: ELF/VLF communications buoy. All have a tube on the rudder fin as in Delta IV which is used for dispensing a thin line towed sonar array. Pert Spring SATCOM. K 119, K 410 and K 266 are based at Litsa South in the Northern Fleet and K 442, K 186, K 526 and K 132 at Tarya Bay in the Pacific. In 1999 one Northern Fleet unit deployed for the first Russian SSGN patrol in the Mediterranean for ten years. At the same time a Pacific Fleet unit sailed to the western seaboard of the United States. The two Oscar Is (K 206 and K 525) are laid up in the Northern Fleet. K 148, K 173, and K 456 are laid up awaiting disposal and K 141 *(Kursk)* sunk as the result of an internal weapon explosion on 12 August 2000. The submarine was raised in late 2001 and broken up ashore.
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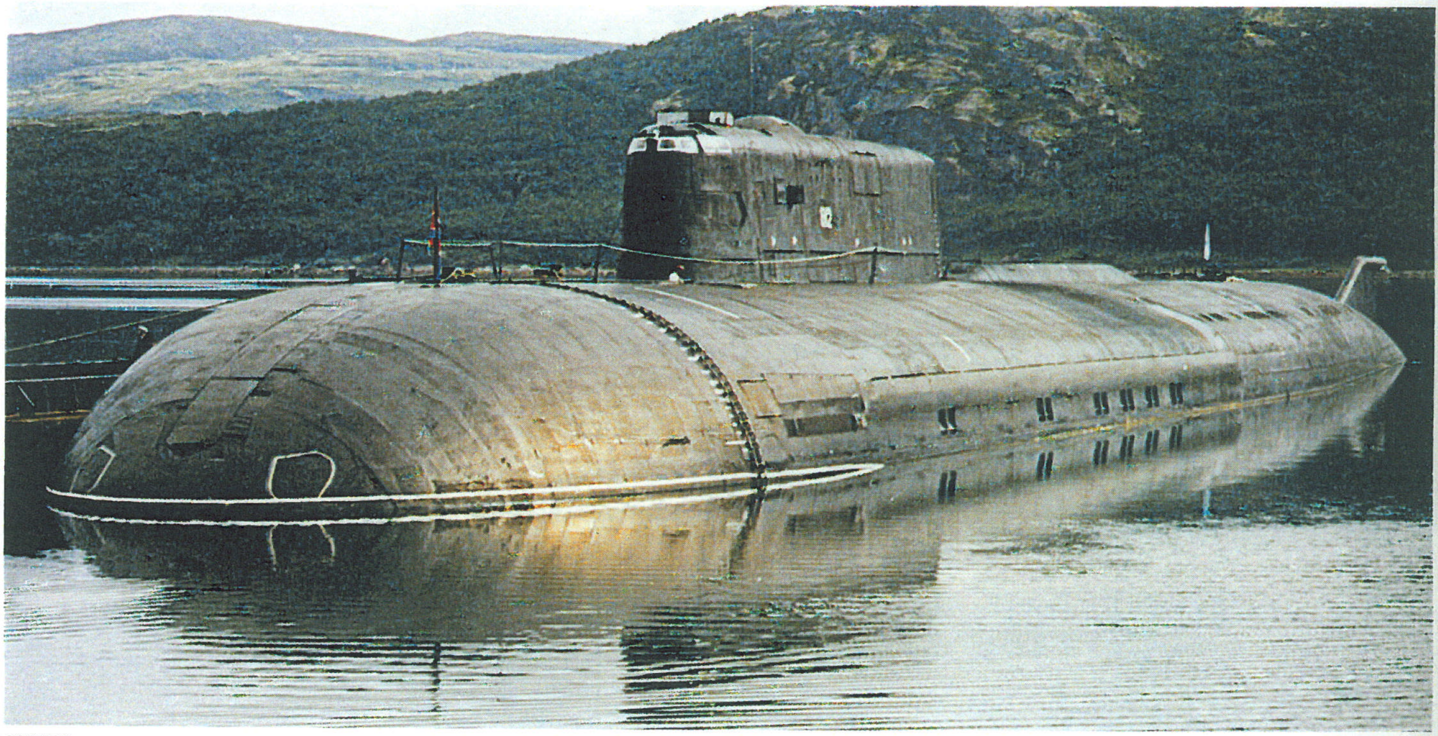
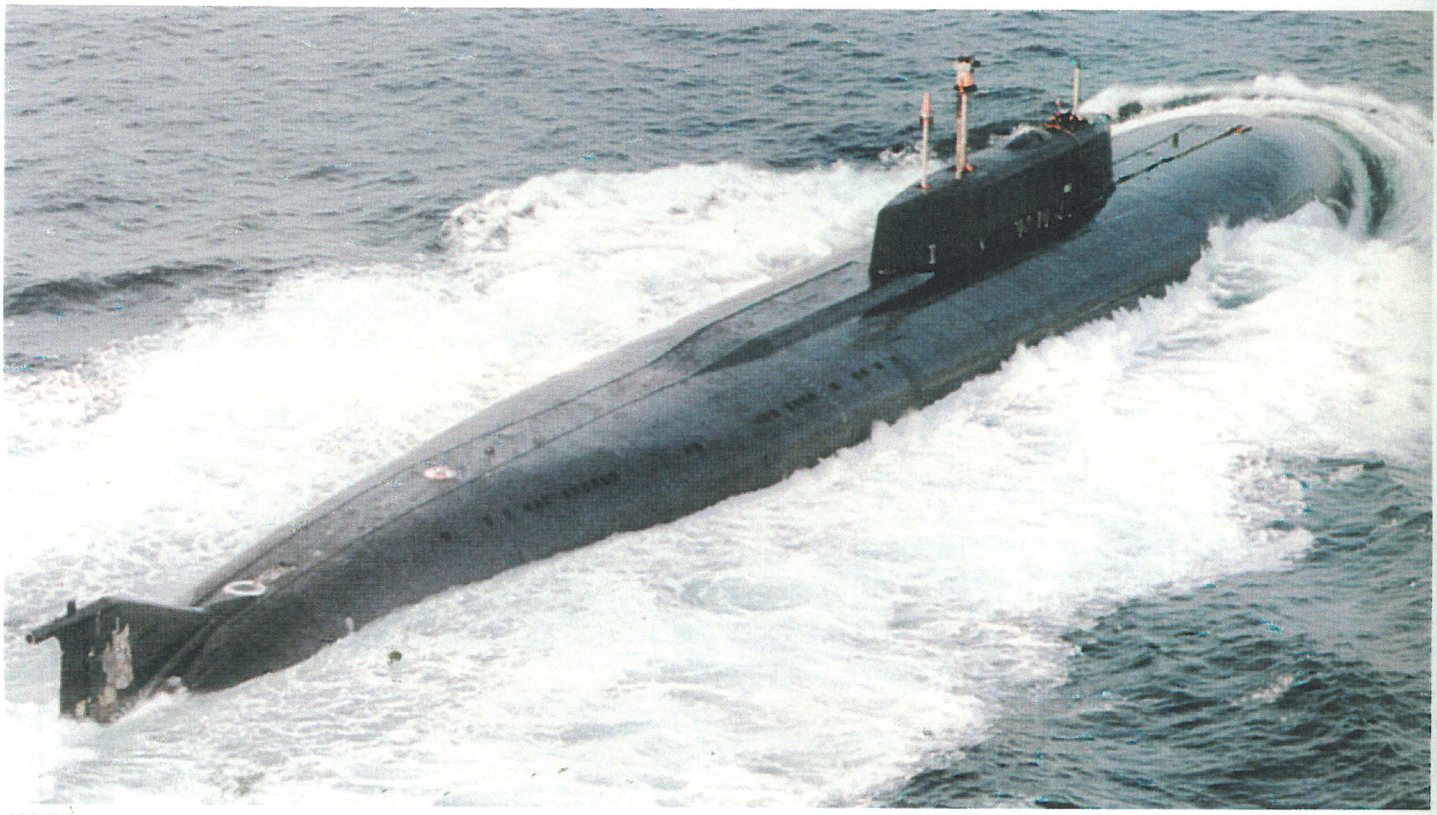


OSCAR II

3/2002, B Lemachko* / 0570930



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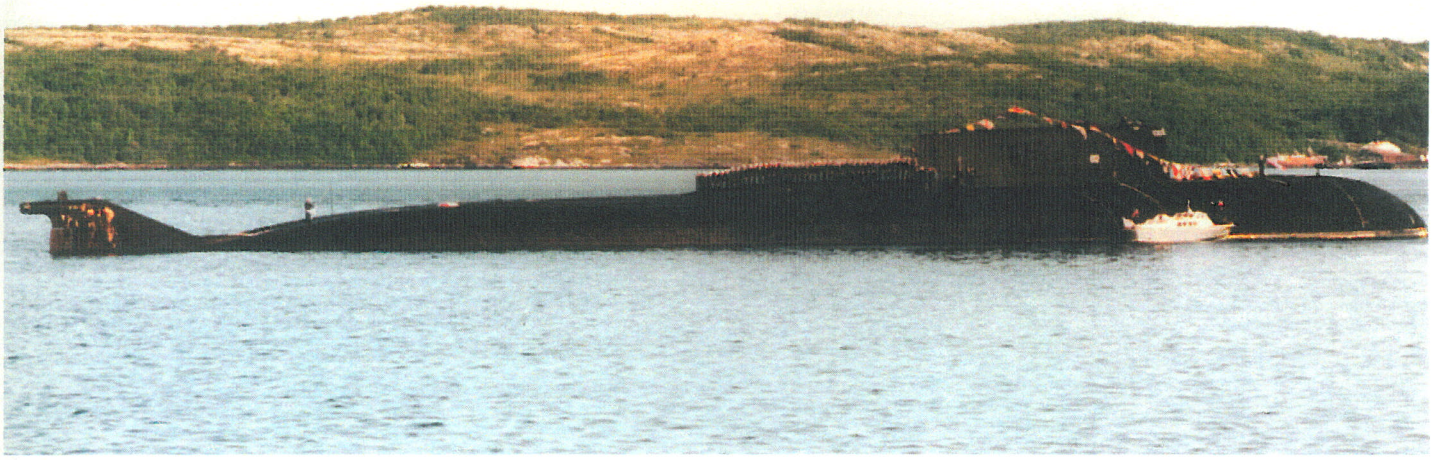

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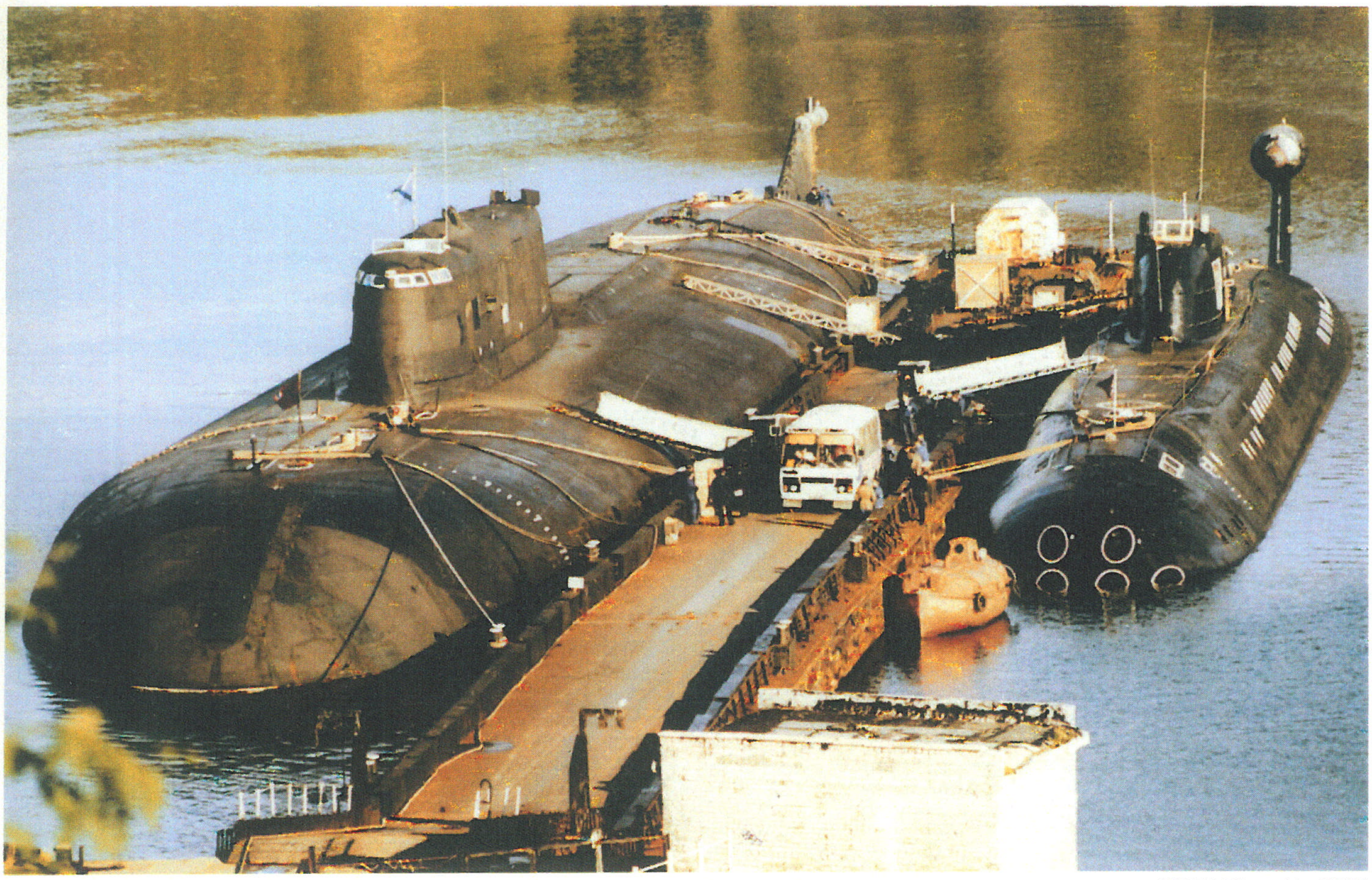
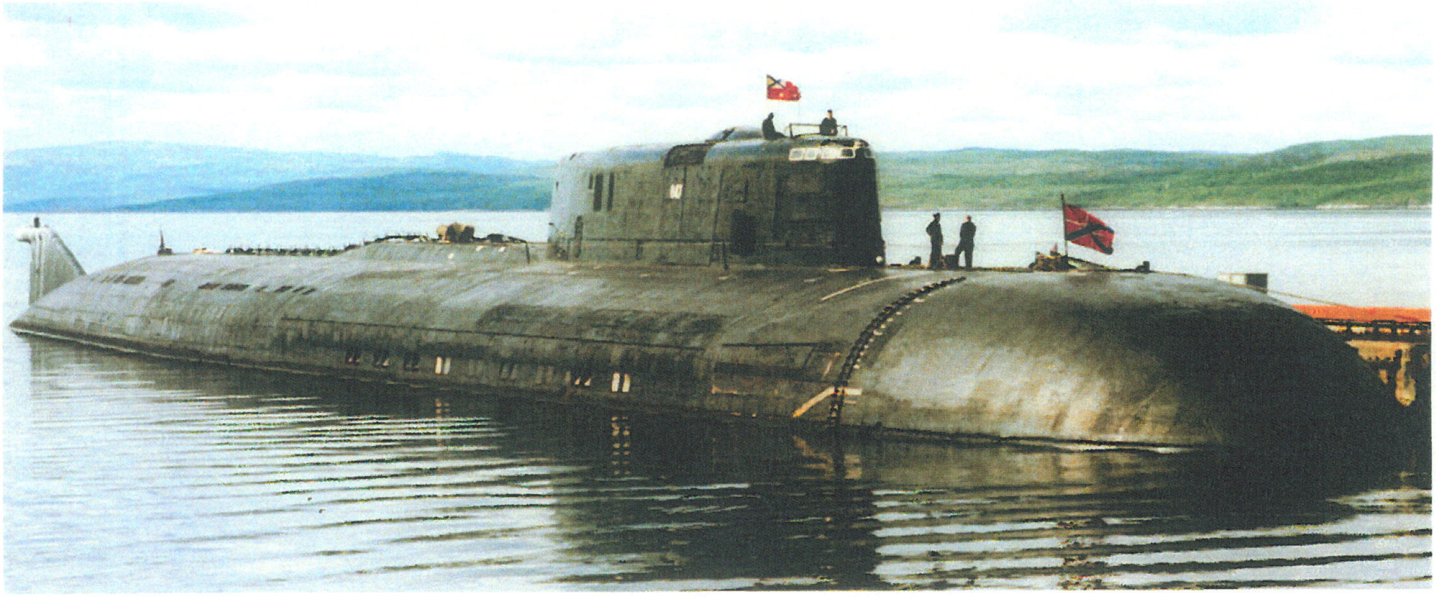


VORONEZH and DANIL MOSKOVSKIY (VICTOR III) *6/2002*, B Lemachko* / 0570929



OREL *9/2001, Ships of the World* / 0126366

8 + 2 AKULA (BARS) CLASS (PROJECT 971/971U/09710) (SSN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
MAGADAN (ex-*Narwhal*)	K 331	Komsomolsk Shipyard	1984	1986	1990
VOLK	K 461	Severodvinsk Shipyard	1986	11 June 1991	30 Dec 1991
KUZBASS (ex-*Morzh*)	K 419	Komsomolsk Shipyard	1984	1989	1991
LEOPARD	K 328	Severodvinsk Shipyard	Oct 1988	28 July 1992	Dec 1992
TIGR	K 154	Severodvinsk Shipyard	1989	10 June 1993	Dec 1993
SAMARA (ex-*Drakon*)	K 267	Komsomolsk Shipyard	1985	15 July 1994	29 July 1995
NERPA	K 152	Komsomolsk Shipyard	1986	May 1994	–
VEPR (II)	K 157	Severodvinsk Shipyard	1991	10 Dec 1994	Dec 1995
GEPARD (II)	K 335	Severodvinsk Shiyard	1991	18 Aug 1999	29 July 2001
COUGAR (II)	K 337	Severodvinsk Shipyard	1993	2004	2005

Displacement, tons: 7,500 surfaced; 9,100 (9,500 Akula II) dived

Dimensions, feet (metres): 360.1 oa; 337.9 wl × 45.9 × 34.1 *(110; 103 × 14 × 10.4)*

Main machinery: Nuclear; 1 VM-5 PWR; 190 MW; 2 GT3A turbines; 47,600 hp(m) *(35 MW)*; 2 emergency propulsion motors; 750 hp(m) *(552 kW)*; 1 shaft; 2 spinners; 1,006 hp(m) *(740 kW)*

Speed, knots: 28 dived; 10 surfaced

Complement: 62 (31 officers)

Missiles: SLCM/SSM: Reduga SS-N-21 Sampson (Granat) fired from 21 in *(533 mm)* tubes; land-attack; inertial/terrain-following to 3,000 km *(1,620 n miles)* at 0.7 Mach; warhead nuclear 200 kT. CEP 150 m. Flies at a height of about 200 m. Novator Alfa SS-N-27 subsonic flight with supersonic boost for terminal flight; 180 km *(97 mm)*; warhead 200 kg. May be fitted in due course.

SAM: SA-N-5/8 Strela portable launcher. 18 missiles.

A/S: Novator SS-N-15 Starfish (Tsakra) fired from 53 cm tubes; inertial flight to 45 km *(24.3 n miles)*; warhead nuclear 200 kT or Type 40 torpedo. Novator SS-N-16 Stallion fired from 650 mm tubes; inertial flight to 100 km *(54 n miles)*; payload nuclear 200 kT (Vodopad) or Type 40 torpedo (Veder).

Torpedoes: 4—21 in *(533 mm)* and 4—25.6 in *(650 mm)* tubes. Combination of 53 and 65 cm torpedoes (see table at front of section). Tube liners can be used to reduce the larger diameter tubes to 533 mm. Total of 40 weapons. In addition the Improved Akulas and Akula IIs have six additional 533 mm external tubes in the upper bow area.

Countermeasures: ESM: Rim Hat; intercept.

Radars: Surface search: Snoop Pair or Snoop Half with back-to-back aerials on same mast as ESM.

Sonars: Shark Gill (Skat MGK 503); hull-mounted; passive/active search and attack; low/medium frequency.
Mouse Roar; hull-mounted; active attack; high frequency.
Skat 3 towed array; passive; very low frequency.

Programmes: Malakhit design. From K 461 onwards, the Akula Is were 'improved'. K 157 was the first Akula II to complete. Little is known of K 337; she may be the last of class before the 'Yasen' class enters service and is likely to incorporate further developments. Akula I K 152 has been building for 15 years at Komsomolsk and there must be doubts about its completion.

Structure: The very long fin is particularly notable. Has the same broad hull as Sierra and has reduced radiated noise levels by comparison with Victor III of which she is the traditional follow-on design. A number of prominent non-acoustic sensors appear on the fin leading-edge and on the forward casing in the later Akulas. The engineering standards around the bridge and casing are noticeably to a higher quality than other classes. The design has been incrementally improved with reduced noise levels, boundary layer suppression and active noise cancellation reported in the later units. The Improved hulls have an additional six external torpedo tubes and the first two Akula IIs have been lengthened by 3.7 m to incorporate further noise reduction developments. Operational diving depth, 1,476 ft *(450 m)*.

Operational: Pert Spring SATCOM. Both Akula IIs and the three Severodvinsk built Akala Is serve in the Northern Fleet and are based at Saida Guba and Sevr. The three Konsomolsk built Akula Is serve in the Pacific Fleet and are based at Tarya Bay. These submarines are the core units of the Russian SSN force.

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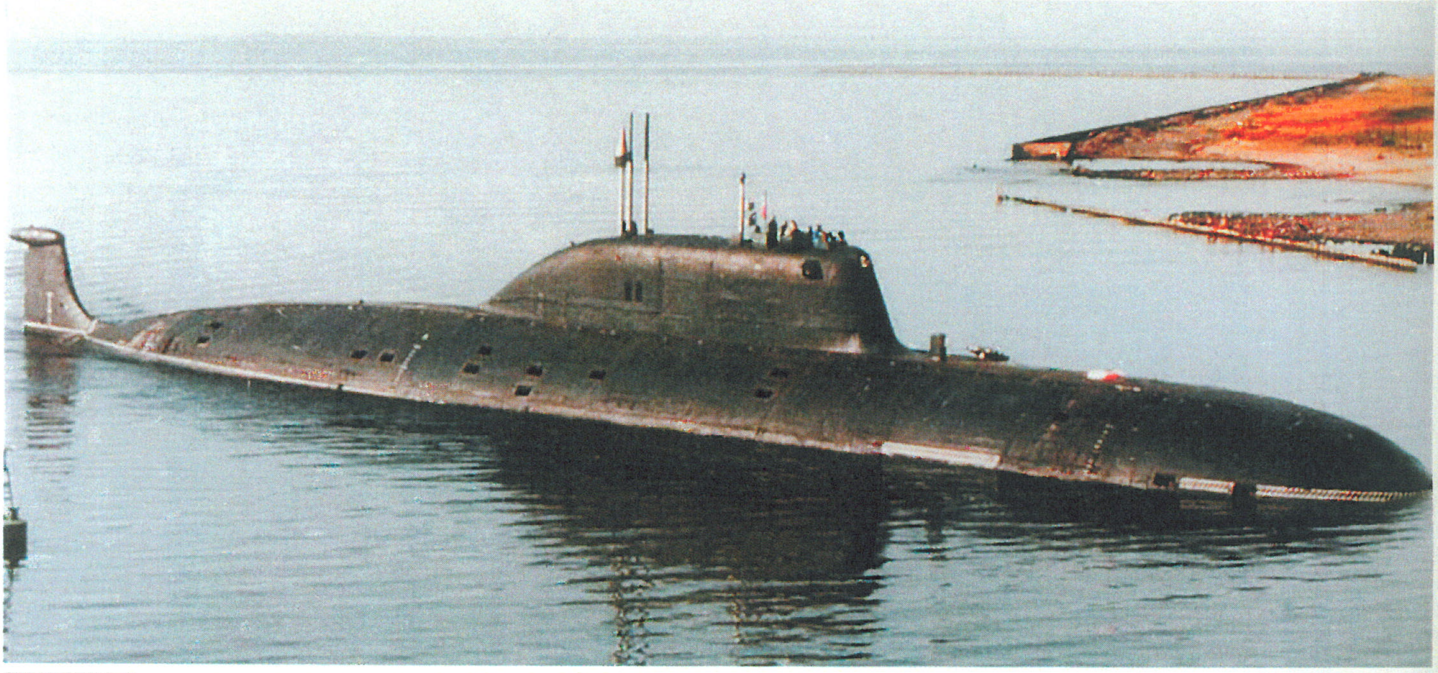
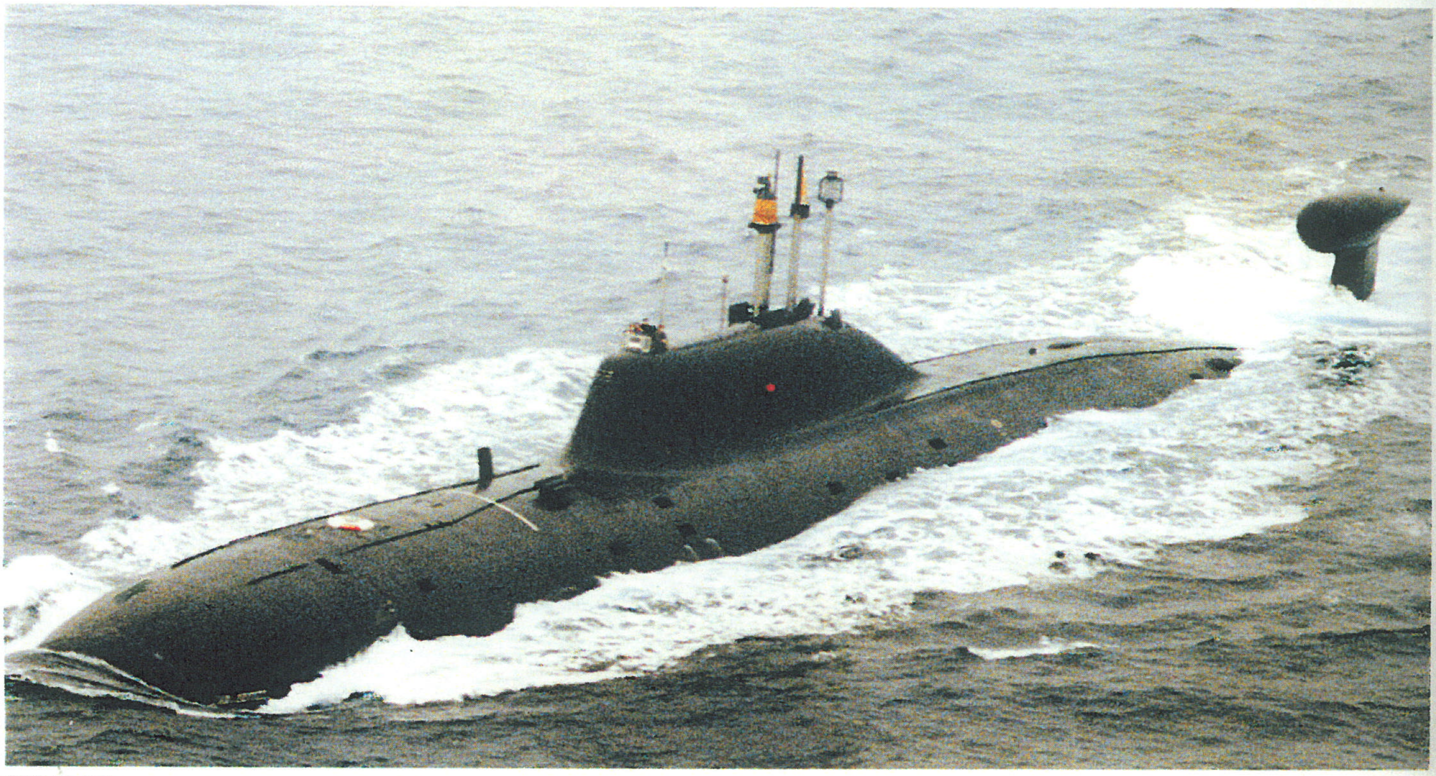


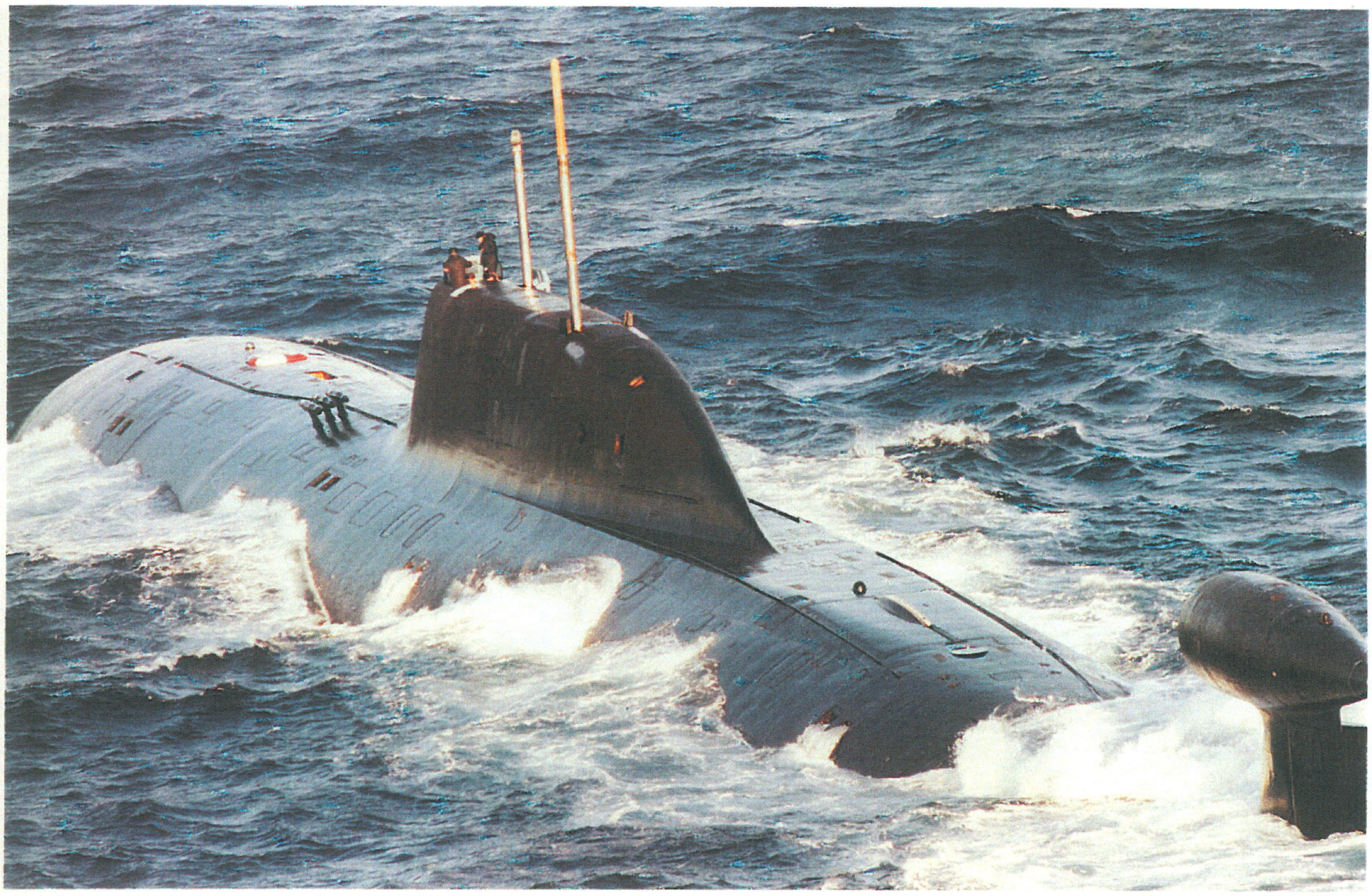
GEPARD (Akula II)

6/2002, S Breyer / 0528327

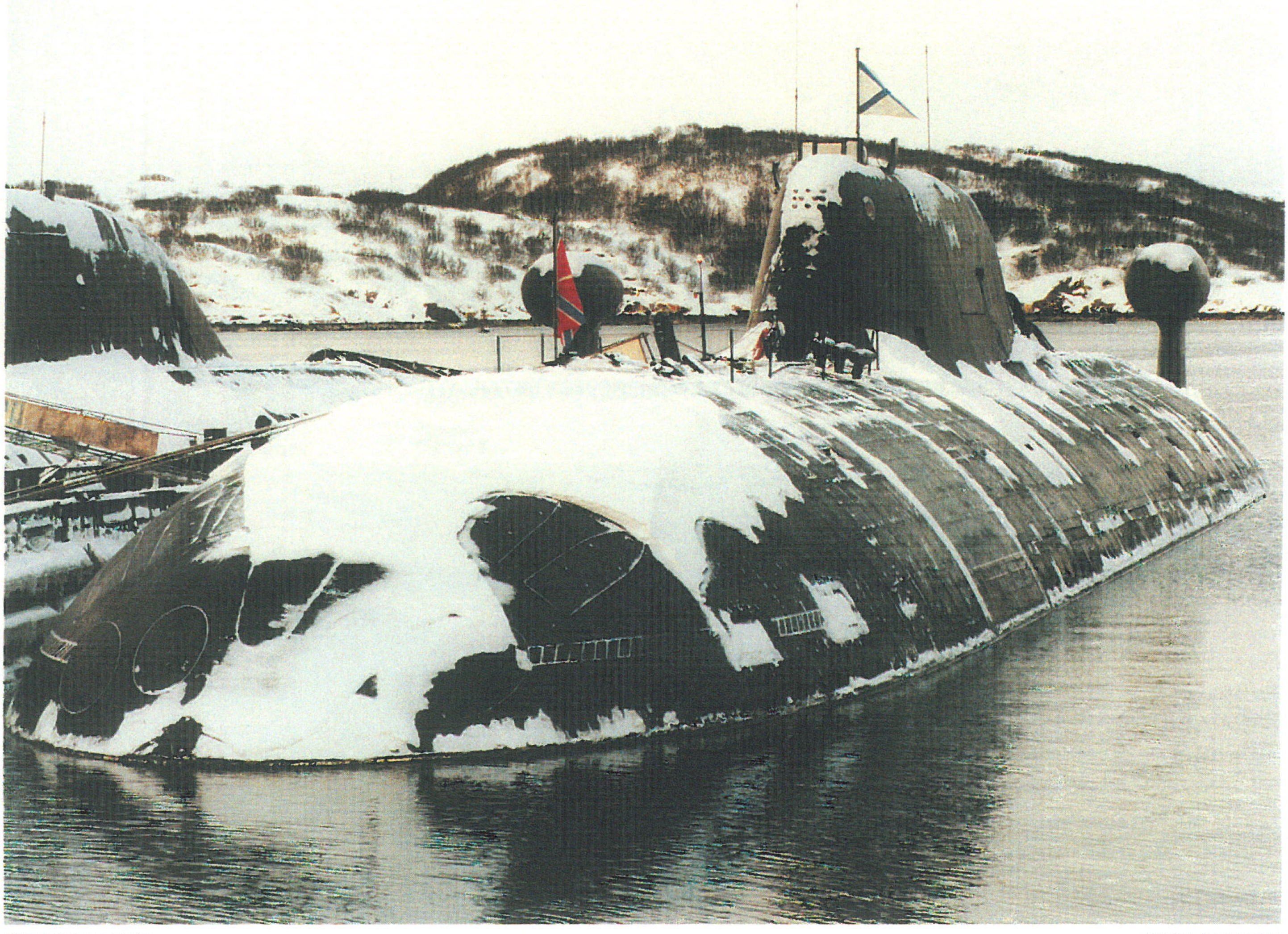


VEPR (Akula II)

4/1998 / 0081645



AKULA I *10/1993*



TIGR (Improved Akula) *2/1996, B Lemachko*

1 SIERRA I (BARRACUDA) CLASS (PROJECT 945) (SSN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
KOSTROMA (ex-*Krab*)	K 276	Gorky Shipyard/Severodvinsk Shipyard	8 May 1982	29 June 1983	21 Sep 1984

Displacement, tons: 7,200 surfaced; 8,100 dived
Dimensions, feet (metres): 351 × 41 × 28.9 *(107 × 12.5 × 8.8)*
Main machinery: Nuclear; 1 VM-5 PWR; 190 MW; 1 GT3A turbine; 47,500 hp(m) *(70 MW)*; 2 emergency motors; 2,004 hp(m) *(1.5 MW)*; 1 shaft; 2 spinners; 1,006 hp(m) *(740 kW)*
Speed, knots: 34 dived; 10 surfaced
Complement: 61 (31 officers)

Missiles: SLCM: Raduga SS-N-21 Sampson (Granat) fired from 21 in *(533 mm)* tubes; land-attack; inertial/terrain-following to 3,000 km *(1,620 n miles)* at 0.7 Mach; warhead nuclear 200 kT. CEP 150 m. Probably flies at a height of about 200 m.
A/S: Novator SS-N-15 Starfish (Tsakra) fired from 53 cm tubes; inertial flight to 45 km *(24.3 n miles)*; warhead nuclear 200 kT or Type 40 torpedo.
Novator SS-N-16 Stallion fired from 65 cm tubes; inertial flight to 100 km *(54 n miles)*; payload nuclear 200 kT (Vodopad) or Type 40 torpedo (Veder).
Torpedoes: 4—25.6 in *(650 mm)* and 4—21 in *(533 mm)* tubes. Combination of 65 and 53 cm torpedoes (see table at front of section). Total of 40 weapons.
Mines: 42 in lieu of torpedoes.
Countermeasures: ESM: Rim Hat/Bald Head; intercept. Park Lamp D/F.
Radars: Surface search: Snoop Pair with back-to-back ESM aerial.
Sonars: Shark Gill; hull-mounted; passive/active search and attack; low/medium frequency.
Shark Rib flank array; passive; low frequency.
Mouse Roar; hull-mounted; active attack; high frequency.
Skat 3 towed array; passive; very low frequency.

Programmes: Launched at Gorky (Nizhny Novgorod) and transferred by river/canal to be fitted out at Severodvsinsk.
Structure: Based on design experience gained with deleted 'Alfa' class, pressure hull constructed of titanium alloy, providing deep diving capability. Magnetic signature also reduced. Distance between hulls increases survivability and reduces radiated noise. There are six watertight compartments. The pod on the after fin is larger than that in 'Victor III'. Bulbous casing at the after end of the fin is for a towed communications buoy. Diving depth 2,460 ft *(750 m)*.
Operational: Pert Spring SATCOM. Based in the Northern Fleet at Ara Guba. It is believed that K 276 was in a collision with USS *Baton Rouge* on 11 February 1992. A second of class K 239 *Karp* is laid up.

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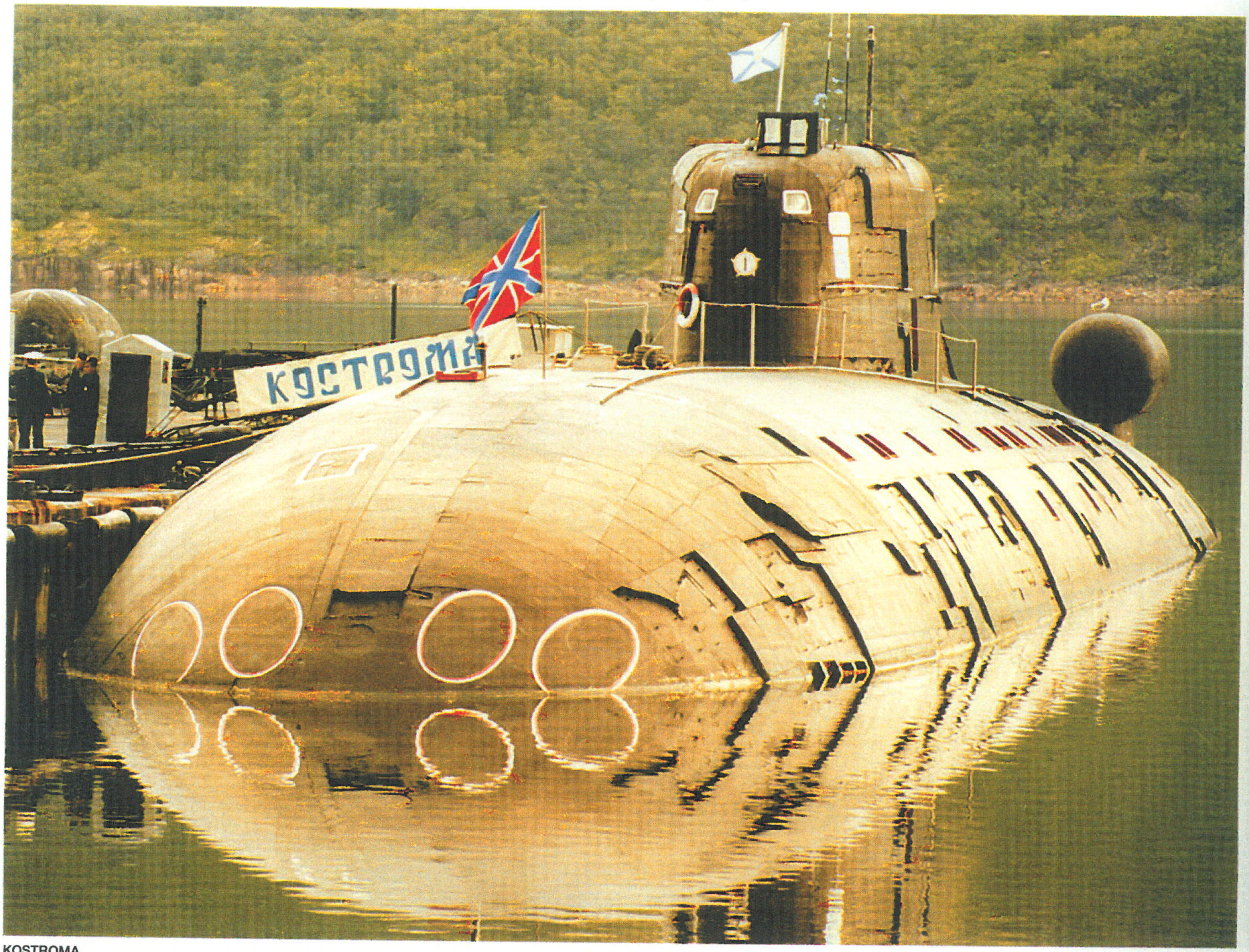


KOSTROMA

6/2002, B Lemachko / 0547070

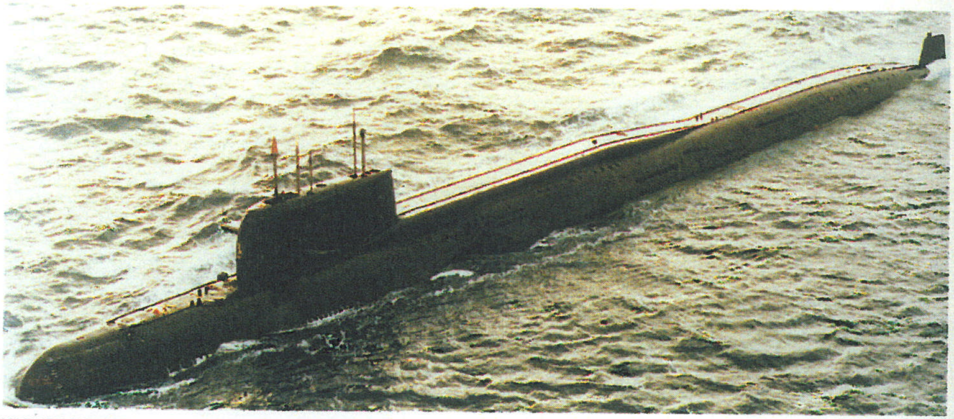
1 YANKEE NOTCH (GROSHA) CLASS (PROJECT 667AR/AT) (SSN, ex-SSBN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
—	K 395	Severodvinsk Shipyard	8 Sep 1967	28 July 1969	5 Dec 1969

Displacement, tons: 8,500 surfaced; 10,300 dived
Dimensions, feet (metres): 464.2 × 38.1 × 26.6 *(141.5 × 11.6 × 8.1)*
Main machinery: Nuclear; 2 VM-4 PWR; 155 MW; 2 GT3A-635 turbines; 52,000 hp(m) *(38.2 MW)*; 2 shafts
Speed, knots: 26 dived; 16 surfaced
Complement: 109 (18 officers)

Missiles: SLCM: 35 Raduga SS-N-21 Sampson (Granat) fired from 6 additional 21 in *(533 mm)* tubes; land attack; inertial/terrain-following to 3,000 km *(1,620 n miles)* at 0.7 Mach; warhead nuclear 200 kT. CEP 150 m. Flies at a height of about 200 m.
Torpedoes: 6—21 in *(533 mm)* tubes; combination of 53 cm torpedoes (see table at front of section). Total of 18 weapons.
Countermeasures: ESM: Brick Group; intercept. Park Lamp D/F.
Radars: Surface search: Snoop Tray; I-band.
Sonars: Shark Teeth; hull-mounted; passive/active search and attack; low/medium frequency.
Mouse Roar; hull-mounted; active attack; high frequency.

Programmes: The SALT limits of 62 SSBNs and 950 SLBMs were adhered to by the Soviet Navy and this resulted in the conversion of 'Yankee' class as well as the deleted 'Hotel' and 'Golf' classes. The Yankee conversion to SSN was first seen in 1983. The conversion took about two years and it seemed to be the intention to convert about 10 of the class until the programme fell victim to financial cuts in 1989-90. See also *Auxiliary Submarine* section.



YANKEE NOTCH

4/1998 / 0050006

Structure: In spite of the removal of the ballistic missile section the overall length of the hull has increased by 39.4 ft *(12 m)* with the insertion of a 'notch waisted' central section. This new section houses three tubes amidships on each side and the magazine holds up to 35 SS-N-21s or additional torpedoes and mines. Brick Spit optronic mast. Diving depth 1,050 ft *(320 m)*.
Operational: Based in the Northern Fleet at Saida Guba although there have been no recent reports of activity. Two others have paid off to reserve.

UPDATED

5 VICTOR III (SCHUKA) CLASS (PROJECT 671 RTMK) (SSN)

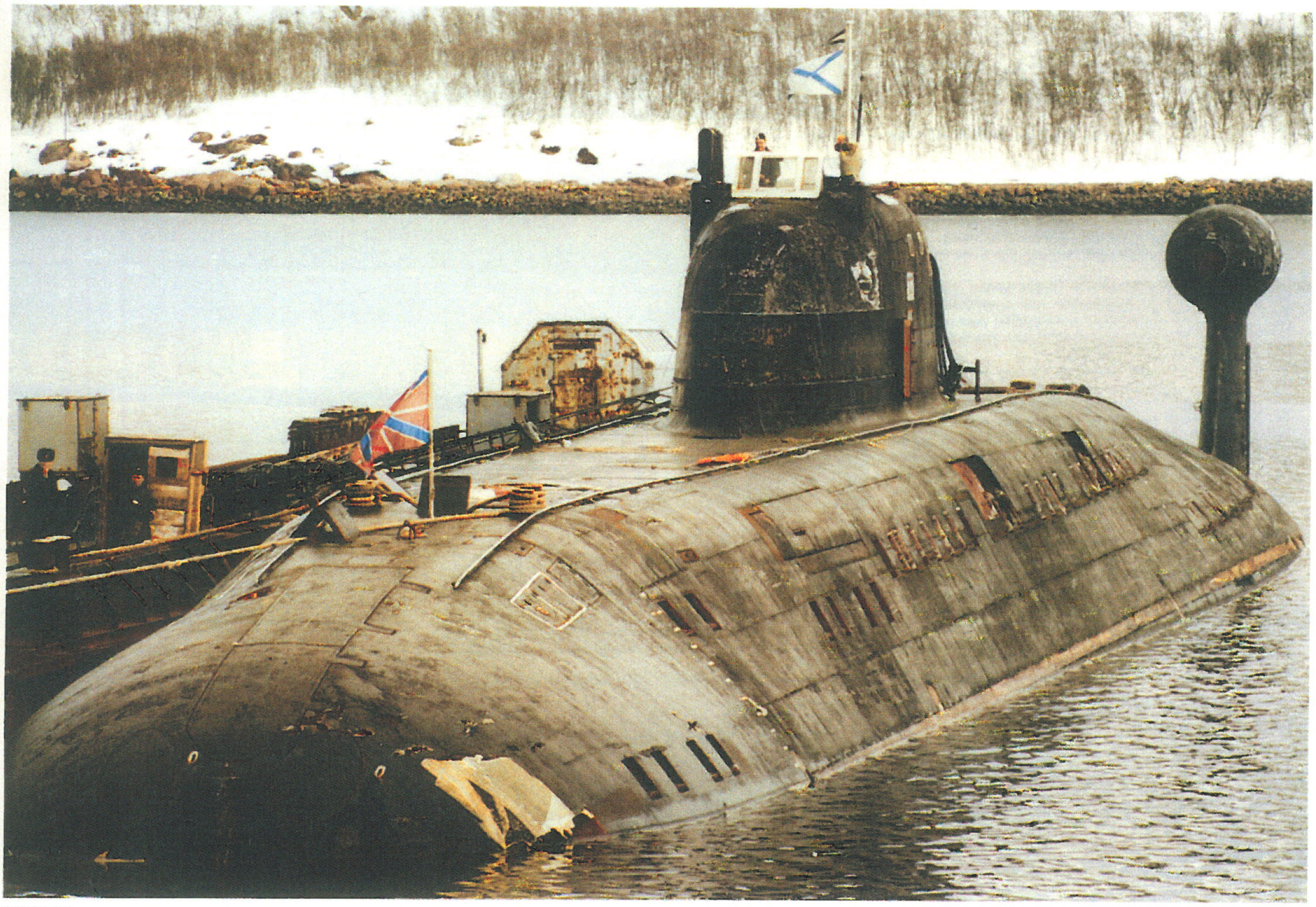
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
PERM	B 292	Admiralty, Leningrad	15 Apr 1986	29 Apr 1987	27 Nov 1987
SNEZHNOGORSK	B 388	Admiralty, Leningrad	8 Sep 1987	3 June 1988	30 Nov 1988
OBNINSK	B 138	Admiralty, Leningrad	7 Dec 1988	5 Aug 1989	10 May 1990
DANIL MOSKOVSKIY	B 414	Admiralty, Leningrad	1 Dec 1988	31 Aug 1990	30 Dec 1990
TAMBOV	B 448	Admiralty, Leningrad	31 Jan 1991	17 Oct 1991	24 Sep 1992

Displacement, tons: 4,850 surfaced; 6,300 dived
Dimensions, feet (metres): 351.1 × 34.8 × 24.3 *(107 × 10.6 × 7.4)*
Main machinery: Nuclear; 2 VM-4 PWR; 150 MW; 2 turbines; 31,000 hp(m) *(22.7 MW)*; 1 shaft; 2 spinners; 1,020 hp(m) *(750 kW)*
Speed, knots: 30 dived; 10 surfaced
Complement: 98 (17 officers)

Missiles: SLCM: Raduga SS-N-21 Sampson (Granat) fired from 21 in *(533 mm)* tubes; land-attack; inertial/terrain-following to 3,000 km *(1,620 n miles)* at 0.7 Mach. CEP 150 m or Novator Alfa SS-N-27 (B 244 only); to 180 km *(97 n miles)*; warhead 200 kg.
A/S: Novator SS-N-15 Starfish (Tsakra) fired from 53 cm tubes; inertial flight to 45 km *(24.3 n miles)*; Type 40 torpedo.
Novator SS-N-16 Stallion fired from 65 cm tubes; inertial flight to 100 km *(54 n miles)*; payload nuclear 200 kT (Vodopad) or Type 40 torpedo (Veder).

Torpedoes: 4—21 in *(533 mm)* and 2—25.6 in *(650 mm)* tubes. Combination of 53 and 65 cm torpedoes (see table at front of section). Can carry up to 24 weapons. Liners can be used to reduce 650 mm tubes to 533 mm.
Mines: Can carry 36 in lieu of torpedoes.
Countermeasures: ESM: Brick Group (Brick Spit and Brick Pulp); intercept. Park Lamp D/F.
Radars: Surface search: Snoop Tray 2; I-band.
Sonars: Shark Gill; hull-mounted; passive/active search and attack; low/medium frequency.
Shark Rib flank array; passive; low frequency.
Mouse Roar; hull-mounted; active attack; high frequency.
Scat 3 towed array; passive; very low frequency.

Programmes: The first of class was completed at Komsomolsk in 1978. With construction also being carried out at Admiralty Yard, Leningrad, there was a very rapid building programme up to the end of 1984. Construction then continued only at Leningrad and at a rate of about one per year which terminated in 1991. The last of the class of 26 boats completed sea trials in October 1992. Of these, the first 21 hulls were designated Type 671RTM. The final five hulls were designated Type 671RTMK to reflect modifications to fire cruise missiles. The last four of these are in service and B 292, having been named, is to be re-activated.
Structure: The streamlined pod on the stern fin is a towed sonar array dispenser. Water environment sensors are mounted at the front of the fin and on the forward casing as in the 'Akula' and 'Sierra' classes. Diving depth, 1,300 ft *(400 m)*.
Operational: VLF communications buoy. VHF/UHF aerials. Navigation equipment includes SINS and SATNAV. Pert Spring SATCOM. Kremmny 2 IFF. Much improved acoustic quietening puts the radiated noise levels at the upper limits of the USN 'Los Angeles' class. All remaining operational units are based in the Northern Fleet at Litsa South or Ara Guba although they rarely go to sea. Twenty two have paid off so far although up to nine of these are in reserve and laid up at anchorages in both Fleets. ***UPDATED***



VICTOR III

2000, B Lemachko / 0126230

Patrol Submarines (SSK)

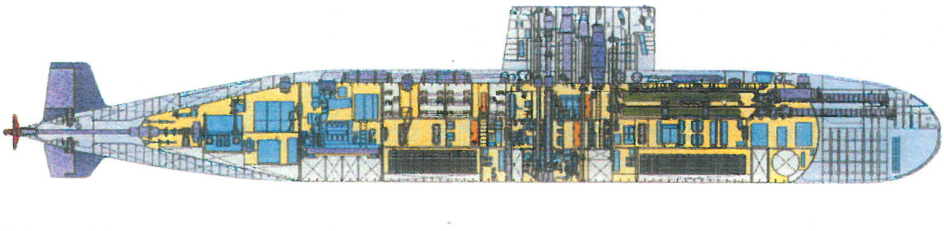
0 + 1 LADA CLASS (PROJECT 677) (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ST PETERSBURG	S 100	Admiralty, St Petersburg	26 Dec 1997	Apr 2004	2005

Displacement, tons: 1,765 surfaced; 2,650 dived
Dimensions, feet (metres): 223.1 × 23.6 × 14.4 *(68 × 7.2 × 4.4)*
Main machinery: Diesel-electric; 2 diesel generators; 3,400 hp (m) *(2.5 MW)*; 1 motor; 5,576 hp(m) *(4.1 MW)*; 1 shaft
Speed, knots: 21 dived; 10 surfaced
Range, miles: 6,000 at 7 kt snorting
Complement: 37

Torpedoes: 6—21 in *(533 mm)* tubes. 18 weapons.
Mines: In lieu of torpedoes.
Countermeasures: ESM: Intercept.
Radars: Surface search: I-band.
Sonars: Hull and flank arrays; active/passive; medium frequency.

Programmes: The national variant of this submarine is known as the 'Lada' class. Work began on the first of class in 1996 and construction started in St Petersburg in 1987. Progress has been slow. Further orders are likely. The export version of the submarine is known as the 'Amur' class of which there are six designs based on different surface displacements (550, 750, 950, 1450, 1650 and 1850). The 'Amur 1650' probably has the most export potential and it was possibly in anticipation of an order from India and China that work began on such a submarine at the same time as the similar 'Lada' class. As an order is yet to materialise, work is believed to have been suspended in 1998.
Structure: This is a Rubin design based on the 'Amur 1650'. A fuel cell plug (for AIP) of about 12 m can be inserted to allow installation of AIP although this is unlikely in the near future. Diving depth: 820 ft *(250 m)*. A non-hull penetrating optronic periscope is being fitted.
Operational: Sea trials are expected to start in 2004. ***UPDATED***



AMUR 1650

1996, Rubin / 0019012

13 KILO CLASS (PROJECT 877K/877M/636) (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
—	B 248	Komsomolsk Shipyard	June 1979	12 Sep 1980	1980
RAZBOYNIK	B 260	Komsomolsk Shipyard	Sep 1980	19 Aug 1981	Dec 1981
—	B 227	Komsomolsk Shipyard	Sep 1981	Sep 1982	Dec 1982
ALROSA	B 871	Nizhny Novgorod	Jan 1983	Mar 1984	June 1984
—	B 806	Nizhny Novgorod	Sep 1985	July 1986	1986
KALUGA	B 800	Nizhny Novgorod	-	-	1989
NOVOSIBIRSK	B 401*	Nizhny Novgorod	June 1988	Aug 1989	4 Jan 1990
VOLOGDA	B 402*	Nizhny Novgorod	Nov 1988	Sep 1989	1990
LIPETSK	B 459*	Nizhny Novgorod	-	-	1990
—	B 471	Nizhny Novgorod	-	-	1990
—	B 177	Nizhny Novgorod	-	-	1991
MAGNETO-GORSK	B 437	Nizhny Novgorod	Sep 1989	Aug 1990	1991
—	B 345	Komsomolsk Shipyard	22 Apr 1993	1993	22 Jan 1994

Displacement, tons: 2,325 surfaced; 3,076 dived
Dimensions, feet (metres): 238.2; 242.1 (Project 636) × 32.5 × 21.7 *(72.6; 73.8 × 9.9 × 6.6)*
Main machinery: Diesel-electric; Type 4-2DL-42M 2 diesels (Type 4-2AA-42M in Project 636); 3,650 hp(m) *(2.68 MW)*; 2 generators; 1 motor; 5,900 hp(m) *(4.34 MW)*; 1 shaft; 2 auxiliary MT-168 motors; 204 hp(m) *(150 kW)*; 1 economic speed motor; 130 hp(m) *(95 kW)*
Speed, knots: 17 dived; 10 surfaced; 9 snorting
Range, miles: 6,000 at 7 kt snorting; 400 at 3 kt dived
Complement: 52 (13 officers)

Missiles: SSM: Novator Alfa SS-N-27 may be fitted in due course.
SAM: 6-8 SA-N-5/8; IR homing from 600 to 6,000 m at 1.65 Mach; warhead 2 kg; portable launcher stowed in a well in the fin between snort and W/T masts.
Torpedoes: 6—21 in *(533 mm)* tubes. 18 combinations of 53 cm torpedoes (see table at front of section). USET-80 is wire-guided in the 4B version (from 2 tubes).
Mines: 24 in lieu of torpedoes.
Countermeasures: ESM: Squid Head or Brick Pulp; radar warning. Quad Loop D/F.
Weapons control: MVU-110EM or MVU-119EM Murena torpedo fire-control system.
Radars: Surface search: Snoop Tray (MRP-25); I-band.
Sonars: Shark Teeth/Shark Fin (MGK-400); hull-mounted; passive/active search and attack; medium frequency.
Mouse Roar; hull-mounted; active attack; high frequency.

Programmes: Also known as the 'Vashavyanka' class, first launched in 1979 at Konsomolsk and commissioned 12 September 1982. Subsequent construction also at Nizhny Novgorod. A total of 24 were built for Russia of which six were of the improved Project 636 variant.

Structure: Had a better hull form than the now deleted 'Tango' class but was nevertheless considered fairly basic by comparison with contemporary western designs. Diving depth 790 ft *(240 m)* normal. Battery has a 9,700 kW/h capacity. The basic 'Kilo' was the Project 877; 877K has an improved fire-control system and 877M includes wire-guided torpedoes from two tubes. Project 636 is an improved design with uprated diesels, a propulsion motor rotating at half the speed (250 rpm), higher standards of noise reduction and an automated combat information system capable of providing simultaneous fire-control data on five targets. Pressure hull length is 170 ft *(51.8 m)* or 174 ft *(53 m)* for Project 636. Foreplanes on the hull are just forward of the fin. Project 636 can be identified by a vertical cut off to the after casing. B 871 has been fitted with a pump jet propulsor.

Operational: With a reserve of buoyancy of 32 per cent and a heavily compartmented pressure hull, this class is capable of being holed and still surviving. Of the original 24, thirteen have been paid off so far. Of these, some are in reserve and in various states of repair but may be suitable for reactivation. B 401*, B 402*, B 459*, B 800, B 177, B 471 and B 437 are based in the Northern Fleet, B 248, B 260 and B 345 are based in the Pacific, B 806 and B 227 in the Baltic and B 871 in the Black Sea. (* indicates Project 636.) Russian made batteries have been a source of problems in warm water operations.

Sales: Exports of Project 877 have been to Poland (one), Romania (one), India (ten), Algeria (two), Iran (three) and China (two). The only exports of Project 636 have been to China (two). A further eight were ordered by China in 2002. Export versions have the letter E after the project number.

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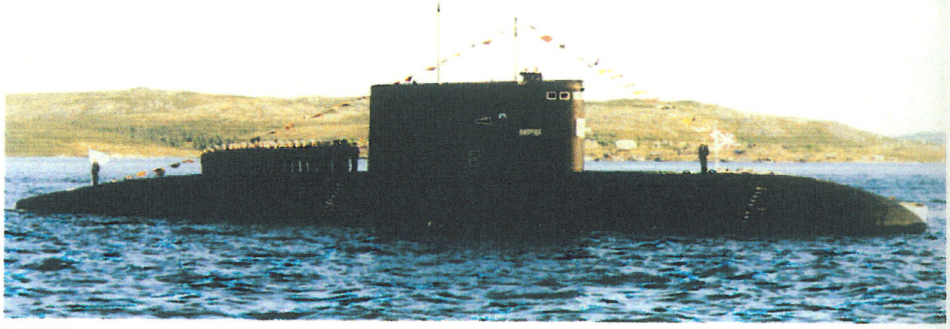
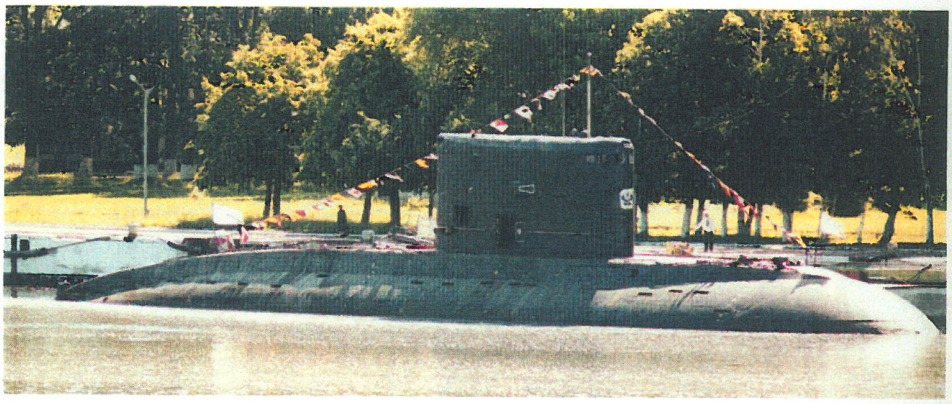
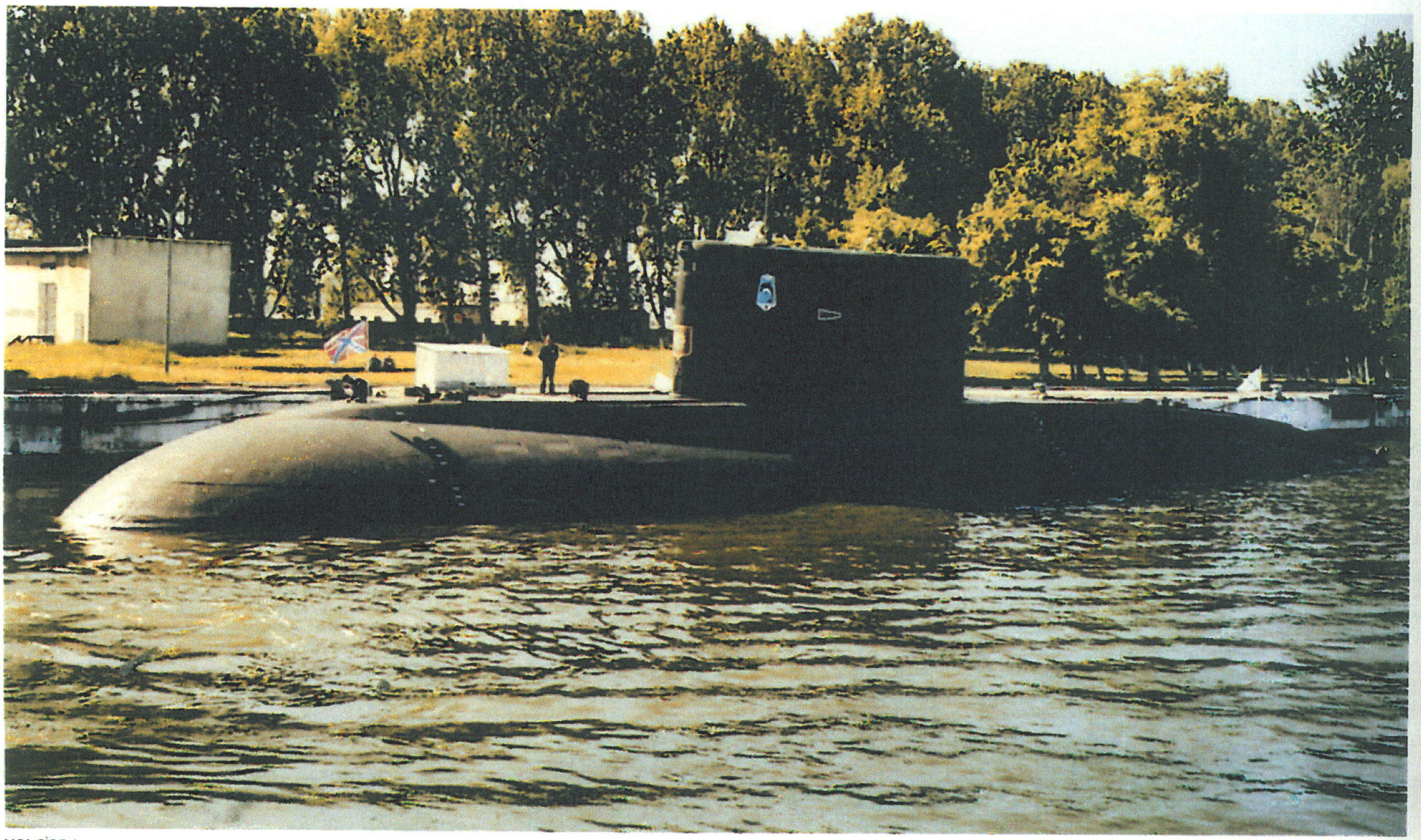


LIPETSK *6/2002*, B Lemachko* / 0570927



KILO *5/2002* / 0528341



VOLOGDA *5/2003*, Jürg Kürsener* / 0570899

Auxiliary Submarines (SSA(N))

Notes: (1) There are a number of Swimmer Delivery Vessels (SDV) in service including Siren (three-man) and Triton, Sever and Elbrus types.
(2) Rescue submersibles in service include AS 22 and AS 26 both of which were used during attempts to recover survivors from the sunken *Kursk* in the Barents Sea in August 2000.
(3) A new auxiliary submarine was launched at Severodvinsk Shipyard on 6 August 2003. This is likely to be used for scientific research and may therefore be a further 'Paltus' or 'Uniform' class if it is not a new design.

2 YANKEE SSAN/STRETCH (PROJECT 09780/09744) CLASS (SSAN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ORIENBURG	KS 411	Severodvinsk Shipyard	25 May 1968	16 Jan 1970	31 Aug 1970
KAZAN	KS 403	Severodvinsk Shipyard	18 Aug 1969	25 Mar 1971	12 Aug 1971

Displacement, tons: 9,800 dived (Yankee SSAN); 11,700 dived (Yankee Stretch)
Dimensions, feet (metres): 498.2 (SSAN); 528.2 (Stretch) × 38 × 26.6 *(151.8; 161 × 11.6 × 8.1)*
Main machinery: Nuclear; 2 VM-4 PWR; 180 MW; 2 turbines; 37,400 hp(m) *(27.5 MW)*; 2 shafts
Speed, knots: 26 dived; 20 surfaced
Complement: 120 (20 officers)
Torpedoes: 4—21 in *(533 mm)* bow tubes.
Countermeasures: ESM: Brick Pulp; radar warning.
Radars: Surface search: Snoop Tray; I-band.
Sonars: Shark Gill; hull-mounted; passive/active search and attack.

Comment: As well as the Yankee Notch SSN and inactive Yankee SSGN conversions, two other hulls have been converted for research and development roles. The Yankee SSAN *(Kazan)* formerly known as the Yankee Pod was used for sonar trials (Project Akson-1) from 1983. The prototype Pod towed array was fitted at the stern in 1984 but after refit in 1993-94 the submarine emerged in 1995 without the Pod but with a bulbous bow sonar (Project Akson-2) which is likely to be the prototype for the *Severodvinsk* (Project 885). The other conversion is the Yankee Stretch *(Orienburg)* completed conversion in June 1990, and has a lengthened central section extending the hull which is used for underwater research. This includes submarine operations using the 'Paltus' class. The Yankee SSAN and the Yankee Stretch are based in the Northern Fleet at Yagri Island and Olenya Guba respectively. Both are very active.

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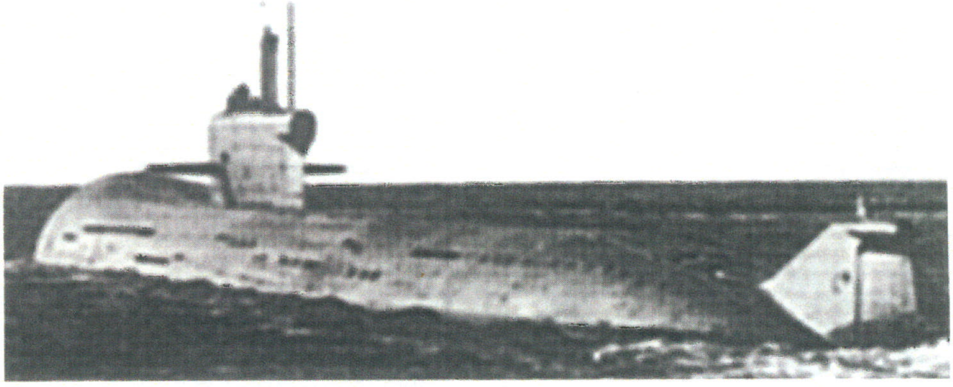
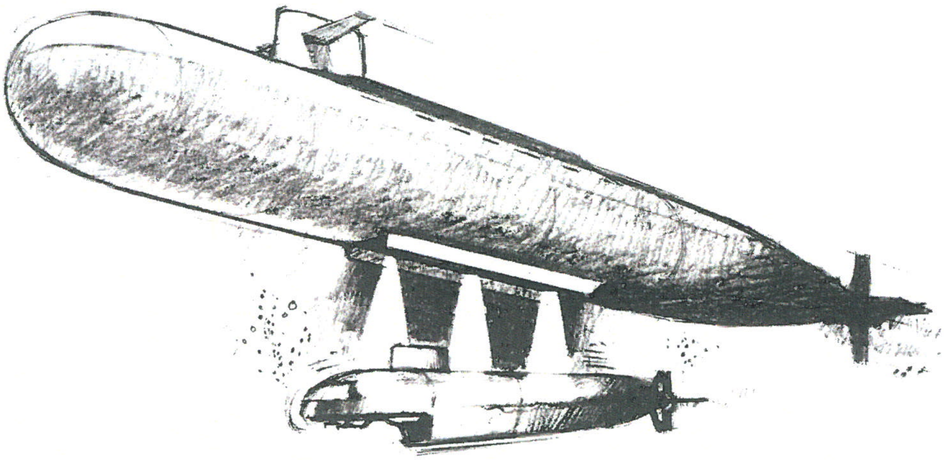
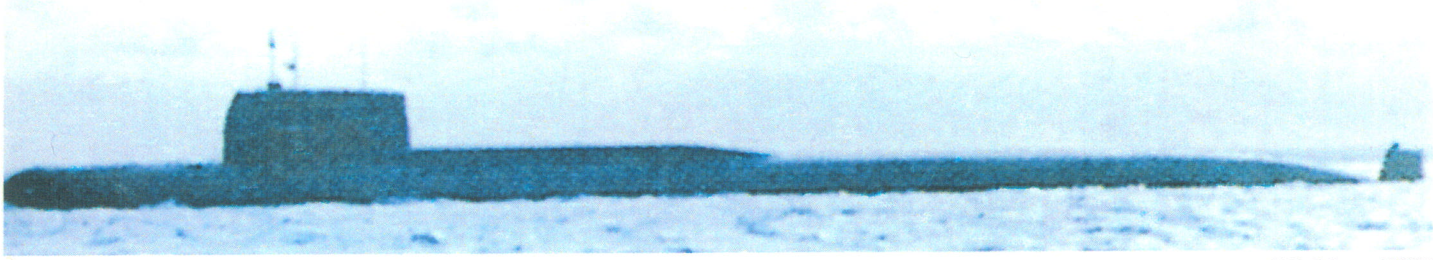


KAZAN *1997, S Breyer* / 0126228



ORIENBURG and PALTUS (artist's impression)
1997 / 0019014



ORIENBURG *2000, S Breyer* / 0126225

1 DELTA III STRETCH (PROJECT 667 BDR) (SSAN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
—	BS 129	Severodvinsk Shipyard	Feb 1979	Mar 1981	5 Nov 1981

Dimensions, feet (metres): 534.9 × 39.4 × 28.5 *(163 × 12 × 8.7)*
Main machinery: Nuclear: 2 VM-4 PWR; 180 MW; 2 GT 3A-635 turbines; 37,400 hp(m) *(27.5 MW)*; 2 emergency motors; 612 hp(m) *(450 kW)*; 2 shafts
Speed, knots: 24 dived 14 surfaced
Complement: 130 (40 officers)

Torpedoes: 4—21 in *(533 mm)* and 2—400 mm tubes.
Countermeasures: ESM: Brick Pulp/Group; radar warning.
Radars: Surface search: Snoop Tray; I-band.
Sonars: Shark Teeth; hull mounted; active/passive search; low/medium frequency.
Shark Hide; flank array; passive low frequency.
Mouse Roar; hull mounted; active high frequency.

Comment: Originally launched in 1981, this former SSBN has been converted by replacing the central section with a 43 m plug, extending the overall hull length by 3 m. The submarine is reported to have returned to service in 2003 although, so far, it has been in addition to rather than as a replacement for the Yankee Stretch. Both submarines can operate as a mother ship for the 'Paltus' class. Based in the Northern Fleet.

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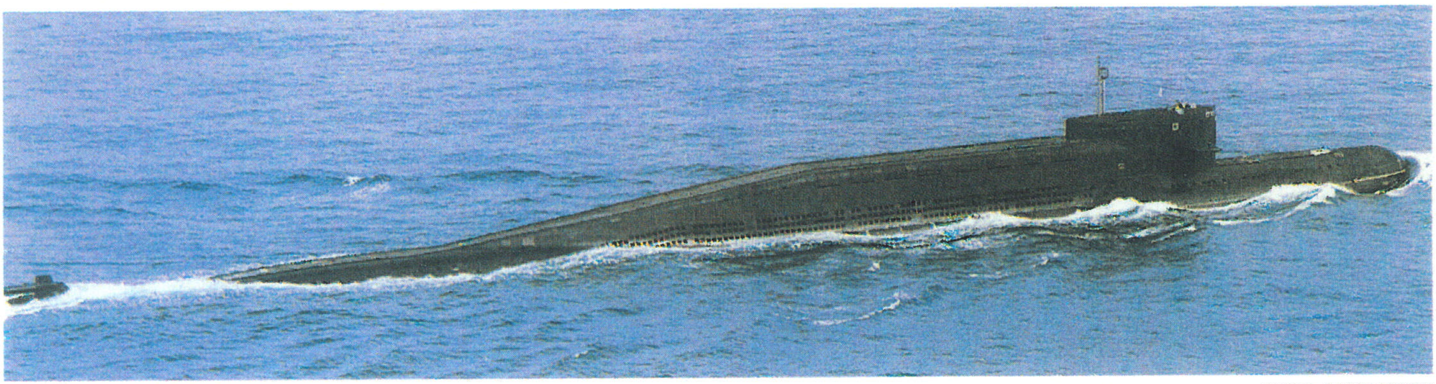

DELTA III (before conversion) *8/1997, JMSDF* / 0019003

3 PALTUS/X-RAY (PROJECT 1851) CLASS (SSAN/SSA)

AS 21 **AS 35** **AS 12** (X-Ray)

Displacement, tons: 730 dived
Dimensions, feet (metres): 173.9 × 12.5 × 13.8 *(53 × 3.8 × 4.2)*
Main machinery: Nuclear; 1 reactor; 10 MW; 1 shaft; ducted thrusters
Speed, knots: 6 dived
Complement: 14

Comment: Details given are for the two 'Paltus' (Nelhma) class (A 21, AS 35). The first was launched at Sudomekh, St Petersburg in April 1991, a second of class in September 1994 and a third was started but not completed. This is a follow-on to the single 520 ton 'X-Ray' (AS 12) class which was first seen in 1984 and after a long spell out of service was back in operation in 1999. Paltus probably owes much to the USN NR 1. Paltus is associated with the Yankee Stretch SSAN which acts as a mother ship for special operations. The Delta Stretch SSAN which reportedly entered service in 2003, will probably serve the same role. Titanium hulled and very deep diving to 1,000 m *(3,280 ft)*. Paltus based in the Northern Fleet at Olenya Guba, X-Ray at Yagri Island.

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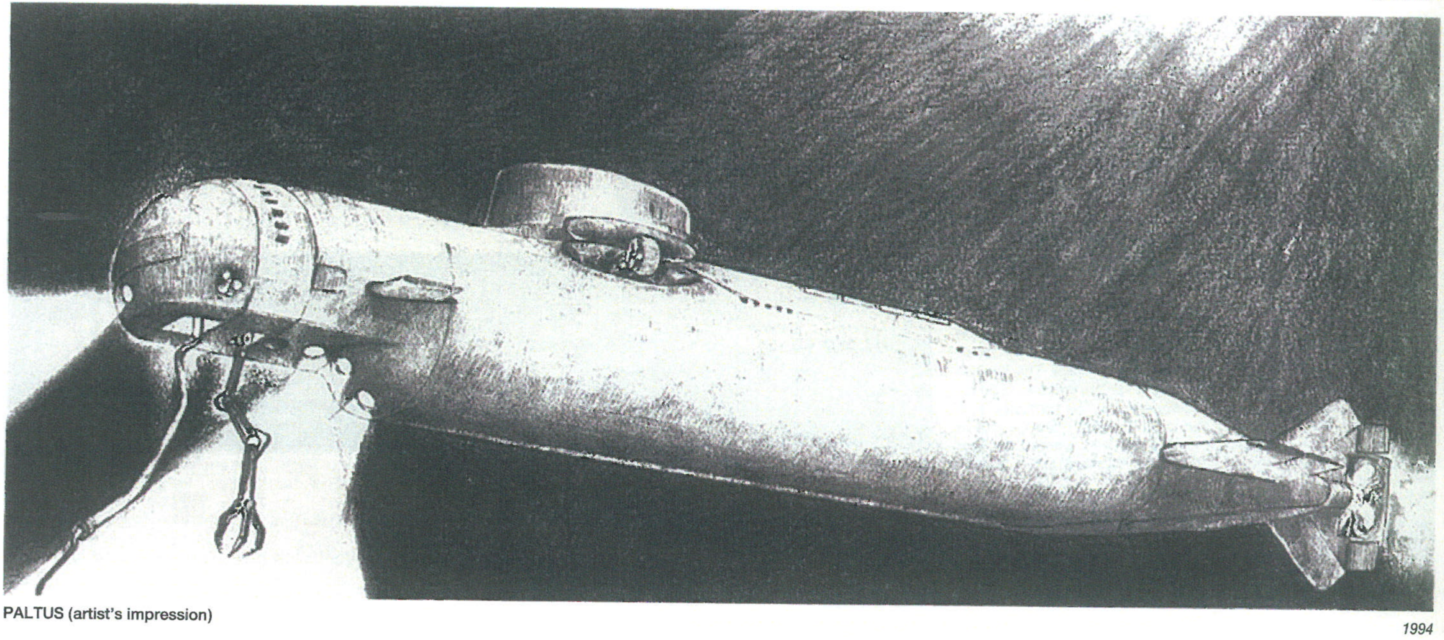

PALTUS (artist's impression)

1994

3 UNIFORM (KACHALOT) CLASS (PROJECT 1910) (SSAN)

No	*Builders*	*Laid down*	*Launched*	*Commissioned*
AS 13	Sudomekh, Leningrad	20 Oct 1977	25 Nov 1982	31 Dec 1986
AS 14	Sudomekh, Leningrad	23 Feb 1983	29 Apr 1988	30 Dec 1991
AS 15	Sudomekh, St Petersburg	16 July 1990	26 Aug 1995	Feb 1998

Displacement, tons: 1,340 surfaced; 1,580 dived
Dimensions, feet (metres): 226.4 × 23.0 × 17.0 *(69.0 × 7.0 × 5.2)*
Main machinery: Nuclear; 1 PWR; 15 MW; 2 turbines; 10,000 hp(m) *(7.35 MW)*; 1 shaft; 2 thrusters
Speed, knots: 10 surfaced; 28 dived

Complement: 36
Radars: Navigation: Snoop Slab; I-band.

Comment: Research and development nuclear-powered submarines. Have single hulls and 'wheel' arches either side of the fin which house side thrusters. These are titanium hulled and very deep diving submarines (possibly down to 700 m *(2,300 ft)*), based in the Northern Fleet at Olenya Guba, and are used mainly for ocean bed operations. Plans to build more of the class were thought to have been shelved. It is not clear whether an auxiliary submarine launched on 6 August 2003 is a fourth 'Uniform' or a different design.

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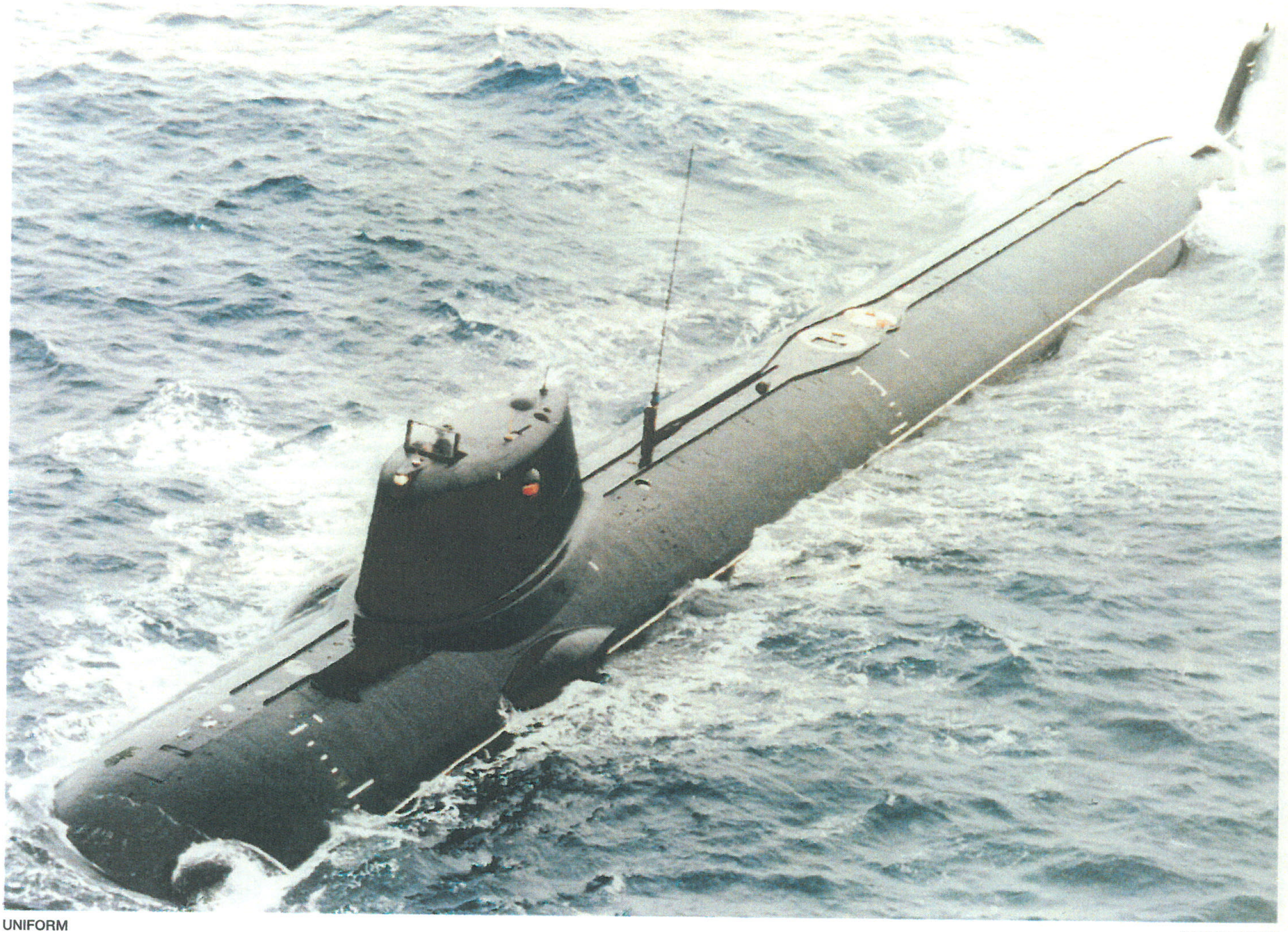


UNIFORM

8/1996 / 0016660

AIRCRAFT CARRIERS

Note: Of the former aircraft carriers of the 'Kiev' class, *Kiev* was sold to China for scrap in 2000; *Minsk* and *Novorossiysk* were sold to a South Korean Corporation in 1994. *Minsk* later became a tourist attraction in Shenzen, China, while *Novorossiysk* was scrapped in India. *Admiral Gorshkov* (ex-*Baku*) is to be refitted and transferred to the Indian Navy.

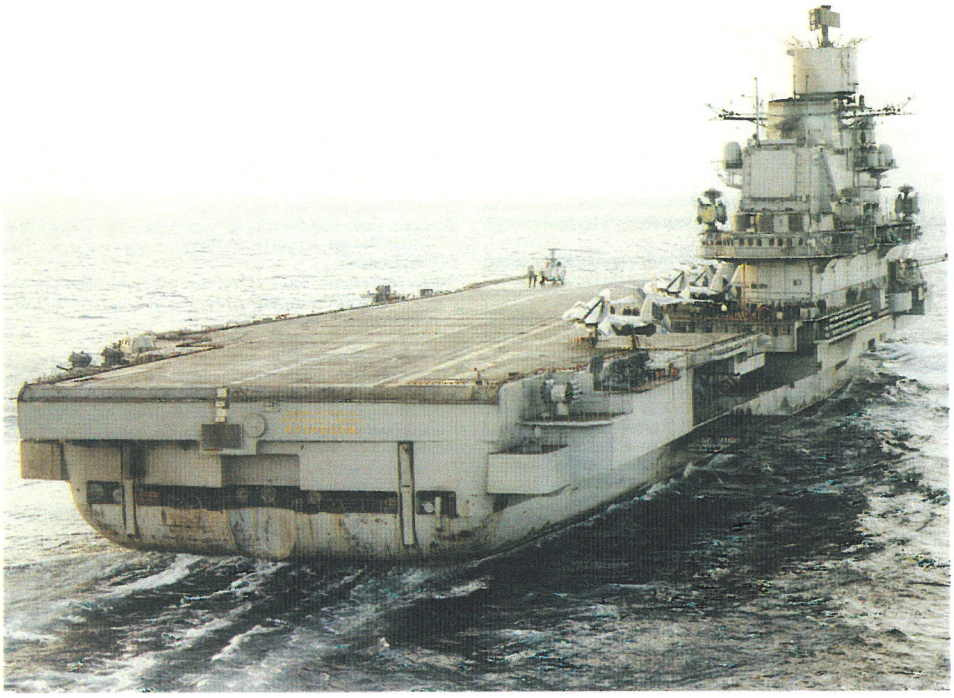
1 KUZNETSOV (OREL) CLASS (PROJECT 1143.5/6) (CVGM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ADMIRAL KUZNETSOV (ex-*Tbilisi*, ex-*Leonid Brezhnev*)	063	Nikolayev South, Ukraine	1 Apr 1982	16 Dec 1985	25 Dec 1990

Displacement, tons: 45,900 standard; 58,500 full load
Dimensions, feet (metres): 999 oa; 918.6 wl × 229.7 oa; 121.4 wl × 34.4 *(304.5; 280 × 70; 37 × 10.5)*
Flight deck, feet (metres): 999 × 229.7 *(304.5 × 70)*
Main machinery: 8 boilers; 4 turbines; 200,000 hp(m) *(147 MW)*; 4 shafts
Speed, knots: 30. **Range, miles:** 3,850 at 29 kt; 8,500 at 18 kt
Complement: 1,960 (200 officers) plus 626 aircrew plus 40 Flag staff

Missiles: SSM: 12 Chelomey SS-N-19 Shipwreck (3M-45) launchers (flush mounted) ❶; inertial guidance with command update; active radar homing to 20-550 km *(10.8-300 n miles)* at 2.5 Mach; warhead 500 kT nuclear or 750 kg HE.
SAM: 4 Altair SA-N-9 Gauntlet (Klinok) sextuple vertical launchers (192 missiles) ❷; command guidance and active radar homing to 12 km *(6.5 n miles)* at 2 Mach; warhead 15 kg. 24 magazines; 192 missiles; 4 channels of fire.
SAM/Guns: 8 Altair CADS-N-1 (Kortik/Kashtan) ❸; each has a twin 30 mm Gatling combined with 8 SA-N-11 (Grisson) and Hot Flash/Hot Spot fire-control radar/optronic director. Laser beam-riding guidance for missiles to 8 km *(4.4 n miles)*; warhead 9 kg; 9,000 rds/min combined to 2 km (for guns).
Guns: 6—30 mm/65 ❹ AK 630; 6 barrels per mounting; 3,000 rds/min combined to 2 km. Probably controlled by Hot Flash/Hot Spot on CADS-N-1.
A/S mortars: 2 RBU 12,000 ❺; range 12,000 m; warhead 80 kg. UDAV-1M; torpedo countermeasure.
Countermeasures: Decoys: 10 PK 10 and 4 PK 2 chaff launchers.
ESM/ECM: 8 Foot Ball. 4 Wine Flask (intercept). 4 Flat Track. 10 Ball Shield A and B.
Weapons control: 3 Tin Man optronic trackers. 2 Punch Bowl SATCOM datalink ❻. 2 Low Ball SATNAV ❼. 2 Bell Crown and 2 Bell Push datalinks.
Radars: Air search: Sky Watch; four Planar phased arrays ❽; 3D.
Air/surface search: Top Plate B ❾; D/E-band.
Surface search: 2 Strut Pair ❿; F-band.
Navigation: 3 Palm Frond; I-band.
Fire control: 4 Cross Sword (for SAM) ⓫; K-band. 8 Hot Flash; J-band.
Aircraft control: 2 Fly Trap B; G/H-band.
Tacan: Cake Stand ⓬.
IFF: 4 Watch Guard.
Sonars: Bull Horn and Horse Jaw; hull-mounted; active search and attack; medium/low frequency.

Fixed-wing aircraft: 18 Su-27 Flanker D; 4 Su-25 UTG Frogfoot.
Helicopters: 15 Ka-27 Helix. 2 Ka-31 RLD Helix AEW.



ADMIRAL KUZNETSOV *2/1996* / 0050015

Programmes: This was a logical continuation of the deleted 'Kiev' class. The full name of *Kuznetsov* is *Admiral Flota Sovietskogo Sojuza Kuznetsov*. The second of class, *Varyag*, was between 70 and 80 per cent complete by early 1993 at Nikolayev in the Ukraine. Building was then terminated after an unsuccessful attempt by the Navy to fund completion. Subsequently the ship was bought by Chinese interests and, having been towed through the Bosporus on 2 November 2001, arrived at Dalian in March 2002.
Structure: The hangar is 183 × 29.4 × 7.5 m and can hold up to 18 Flanker aircraft. There are two starboard side lifts, a ski jump of 14° and an angled deck of 7°. There are four arrester wires. The SSM system is in the centre of the flight deck forward with flush deck covers. The ship has some 16.5 m of freeboard. There is no Bass Tilt radar and the ADG guns are controlled by Kashtan fire-control system. The ship suffers from severe water distillation problems.
Operational: AEW, ASW and reconnaissance tasks undertaken by Helix helicopters. The aircraft complement listed is based on the number which might be embarked for normal operations but the Russians claim a top limit of 60. *Kuznetsov* conducted extensive flight operations throughout the second half of both 1993 and 1994, and was at sea again by September 1995 after a seven month refit. Deployed to the Mediterranean for 80 days in early 1996 before returning to the Northern Fleet. Based alongside at Rosta from mid-1996 to mid-1998. Sailed for a VIP demonstration in August 1998 and then continued trials and training in-area. There were limited local exercises in 2000 but no activity in 2001 and 2002. The ship left the jetty for Navy Days in 2003. The ship is badly in need of a refit while the operational effectiveness of the airwing must be becoming increasingly difficult to maintain as the numbers of qualified pilots dwindle.

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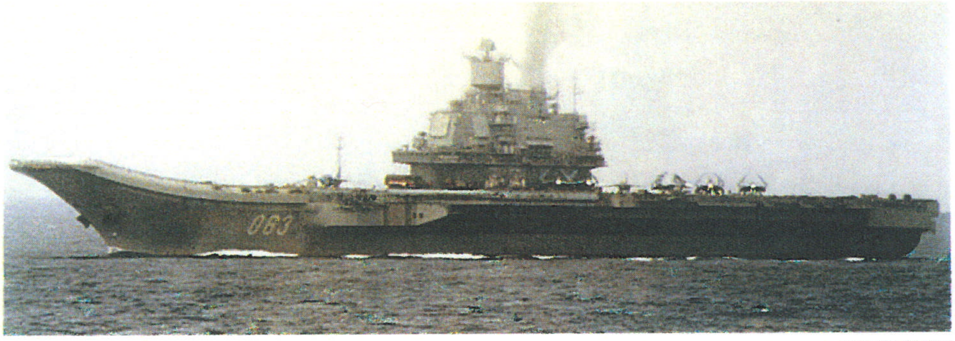
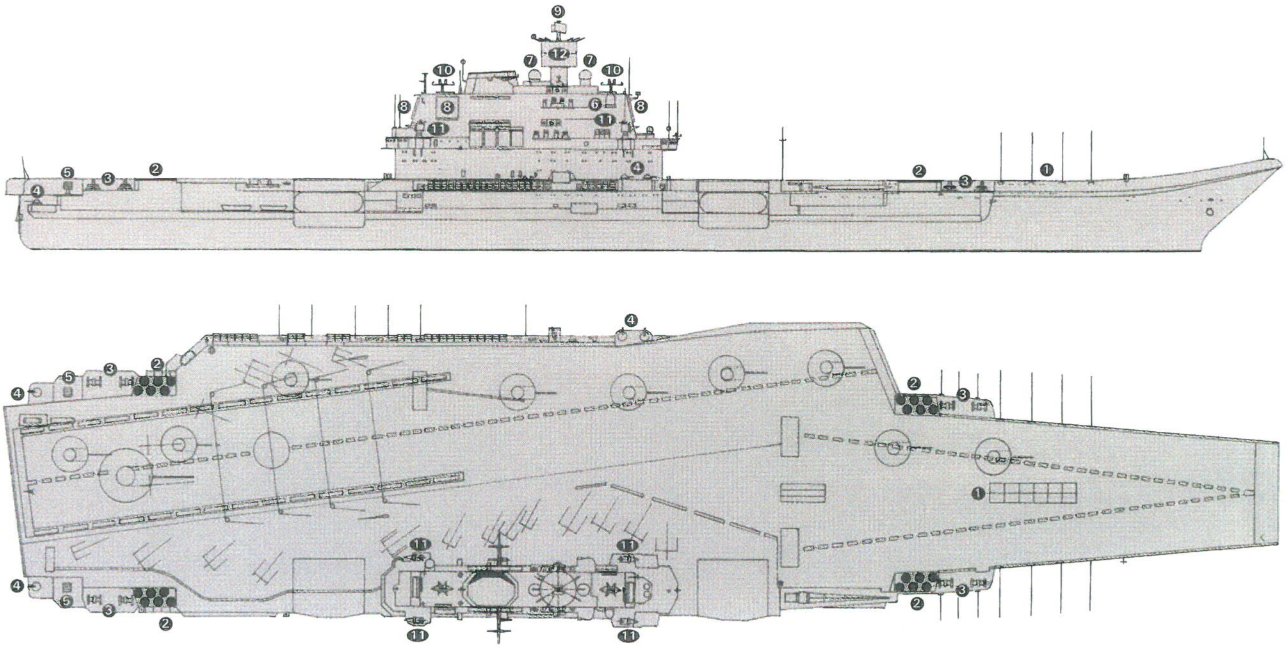


ADMIRAL KUZNETSOV *6/1999* / 0081648



ADMIRAL KUZNETSOV *(Scale 1 : 1,800), Ian Sturton*

BATTLE CRUISERS

1 KIROV (ORLAN) CLASS (PROJECT 1144.1/1144.2) (CGHMN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
PYOTR VELIKIY (ex-*Yuri Andropov*)	099 (ex-183)	Baltic Yard 189, St Petersburg	11 Mar 1986	29 Apr 1989	9 Apr 1998

Displacement, tons: 19,000 standard; 24,300 full load
Dimensions, feet (metres): 826.8; 754.6 wl × 93.5 × 29.5 *(252; 230 × 28.5 × 9.1)*
Main machinery: CONAS; 2 KN-3 PWR; 300 MW; 2 oil-fired boilers; 2 GT3A-688 turbines; 140,000 hp(m) *(102.9 MW)*; 2 shafts
Speed, knots: 30. **Range, miles:** 14,000 at 30 kt
Complement: 726 (82 officers) plus 18 aircrew

Missiles: SSM: 20 Chelomey SS-N-19 Shipwreck (3M 45) (P-700 Granit) (improved SS-N-12 with lower flight profile) ❶; inertial guidance with command update; active radar homing to 20-450 km *(10.8-243 n miles)* at 1.6 Mach; warhead 350 kT nuclear or 750 kg HE; no reloads.
SAM: 12 SA-N-6 Grumble (Fort/Fort M) vertical launchers ❷; 8 rounds per launcher; command guidance; semi-active radar homing to 100 km *(54 n miles)*; warhead 90 kg (or nuclear?); 96 missiles
2 SA-N-4 Gecko twin launchers ❸; semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; warhead 50 kg; altitude 9.1-3,048 m *(30-10,000 ft)*; 40 missiles.
2 SA-N-9 Gauntlet (Kinzhal) octuple vertical launchers ❹; command guidance; active radar homing to 12 km *(6.5 n miles)* at 2 Mach; warhead 15 kg; altitude 3.4-12,192 m *(10-40,000 ft)*; 128 missiles; 4 channels of fire.
SAM/Guns: 6 CADS-N-1 (Kortik/Kashtan) ❺; each has a twin 30 mm Gatling combined with 8 SA-N-11 (Grisson) and Hot Flash/Hot Spot fire-control radar/optronic director. Laser beam-riding guidance for missiles to 8 km *(4.4 n miles)*; warhead 9 kg; 9,000 rds/min combined to 2 km (for guns).
A/S: Novator SS-N-15 (Starfish); inertial flight to 45 km *(24.3 n miles)*; payload Type 40 torpedo or nuclear warhead; fired from fixed torpedo tubes behind shutters in the superstructure.
Guns: 2—130 mm/70 (twin) AK 130 ❻; 35/45 rds/min to 29 km *(16 n miles)*; weight of shell 33.4 kg.
Torpedoes: 10—21 in *(533 mm)* (2 quin) tubes. Combination of 53 cm torpedoes (see table at front of section). Mounted in the hull adjacent the RBU 1000s on both quarters. Fixed tubes behind shutters can fire either SS-N-15 (see *Missiles A/S*) or Type 40 torpedoes.
A/S mortars: 1 RBU 12,000 ❼; 10 tubes per launcher; range 12,000 m; warhead 80 kg.
2 RBU 1000 6-tubed aft ❽; range 1,000 m; warhead 55 kg. UDAV-1M; torpedo countermeasures.
Countermeasures: Decoys: 2 twin PK 2 150 mm chaff launchers. Towed torpedo decoy.
ESM/ECM: 8 Foot Ball. 4 Wine Flask (intercept). 8 Bell Bash. 4 Bell Nip. Half Cup (laser intercept).
Combat Data Systems: Lesorub-44.
Weapons control: 4 Tin Man optronic trackers ❾. 2 Punch Bowl C SATCOM ❿. 4 Low Ball SATNAV. 2 Bell Crown and 2 Bell Push datalinks.
Radars: Air search: Top Pair (Top Sail + Big Net) ⓫; 3D; C/D-band; range 366 km *(200 n miles)* for bomber, 183 km *(100 n miles)* for 2 m² target.
Air/surface search: Top Plate ⓬; 3D; D/E-band.
Navigation: 3 Palm Frond; I-band.
Fire control: Cross Sword ⓭; K-band (for SA-N-9). Top Dome for SA-N-6 ⓮; Tomb Stone E-band (for Fort M) ⓯. 2 Pop Group, F/H/I-band (for SA-N-4) ⓰. Kite Screech ⓱; H/I/K-band (for main guns). 6 Hot Flash for CADS-N-1; I/J-band.
Aircraft control: Flyscreen B; I-band.
IFF: Salt Pot A and B.
Tacan: 2 Round House B ⓲.
Sonars: Horse Jaw (Polinom); hull-mounted; active search and attack; low/medium frequency.
Horse Tail; VDS; active search; medium frequency. Depth to 150-200 m *(492.1-656.2 ft)* depending on speed.

Helicopters: 3 Ka-27 Helix ⓳.

Programmes: Design work started in 1968. Type name is *atomny raketny kreyser* meaning nuclear-powered missile cruiser. A fifth of class was scrapped before being launched in 1989.
Structure: The first Russian surface warships with nuclear propulsion. In addition to the nuclear plant a unique maritime combination with an auxiliary oil-fuelled system has been installed. This provides a superheat capability, boosting the normal steam output by some 50 per cent. The SS-N-19 tubes are set at an angle of about 45°. CADS-N-1 with a central fire-control radar on six mountings, each of which has two cannon and eight missile launchers. Two are mounted either side of the SS-N-19 forward and four on the after superstructure. Same A/S system as the frigate *Neustrashimy* with fixed torpedo tubes in ports behind shutters in the superstructure for firing SS-N-15 or Type 45 torpedoes. These ships are reported as carrying about 500 SAM of different types. *Velikiy* has a Tomb Stone fire-control radar instead of the forward Top Dome for SA-N-20 which is a maritime variant of SA-10C. There are still some equipment deficiencies particularly in fire-control radars which are fitted for but not with.
Operational: Based in the Northern Fleet. Over-the-horizon targeting for SS-N-19 provided by Punch Bowl SATCOM or helicopter. The first two ships of the class of four, *Admiral Ushakov* and *Admiral Lazarev*, have been inactive in the Northern and Pacific Fleets respectively, for some years and both are likely to be scrapped. Plans to refit the third ship, *Admiral Nakhimov*, appear to have been abandoned.

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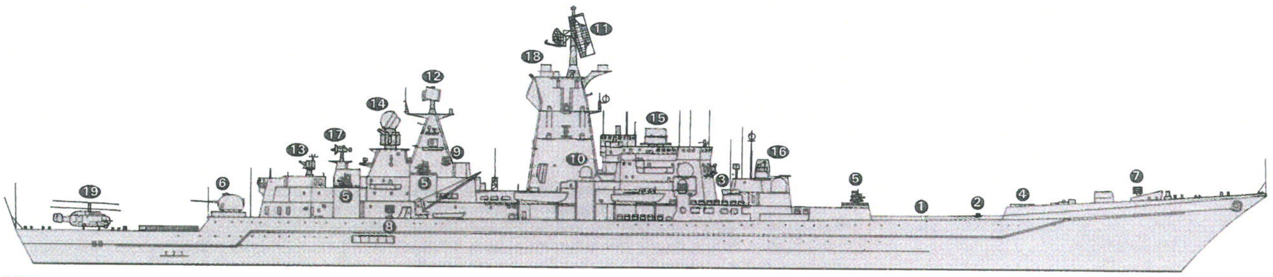


PYOTR VELIKIY

(Scale 1 : 1,500), Ian Sturton / 0528401

PYOTR VELIKIY

*8/2003** / 0570896

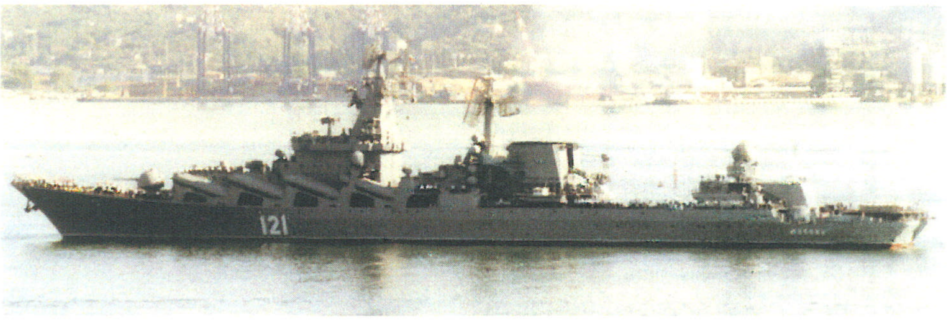
PYOTR VELIKIY

3/2003, B Lemachko* / 0570898

CRUISERS

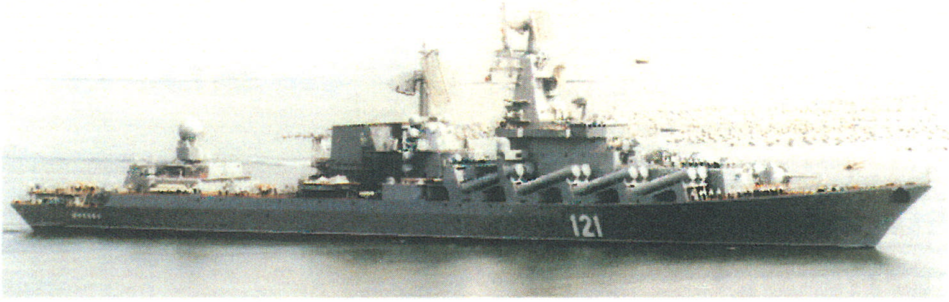
3 SLAVA (ATLANT) CLASS (PROJECT 1164) (CGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
MOSKVA (ex-*Slava*)	121	Nikolayev North (61 Kommuna)	5 Nov 1976	27 July 1979	30 Dec 1982
MARSHAL USTINOV	055	Nikolayev North (61 Kommuna)	5 Oct 1978	25 Feb 1982	15 Sep 1986
VARYAG (ex-*Chervona Ukraina*)	011	Nikolayev North (61 Kommuna)	31 July 1979	28 Aug 1983	25 Dec 1989



MOSKVA

9/2003, Giorgio Ghiglione* / 0570926



MOSKVA

9/2003, Giorgio Ghiglione* / 0570925

Displacement, tons: 9,380 standard; 11,490 full load
Dimensions, feet (metres): 611.5 × 68.2 × 27.6 *(186.4 × 20.8 × 8.4)*
Main machinery: COGAG; 4 gas-turbines; 88,000 hp(m) *(64.68 MW)*; 2 M-70 gas-turbines; 20,000 hp(m) *(14.7 MW)*; 2 shafts
Speed, knots: 32. **Range, miles:** 2,200 at 30 kt; 7,500 at 15 kt
Complement: 476 (62 officers)

Missiles: SSM: 16 Chelomey SS-N-12 (8 twin) Sandbox (Bazalt) launchers ❶; inertial guidance with command update; active radar homing to 550 km *(300 n miles)* at 1.7 Mach; warhead nuclear 350 kT or HE 1,000 kg.

SAM: 8 SA-N-6 Grumble (Fort) vertical launchers ❷; 8 rounds per launcher; command guidance; semi-active radar homing to 100 km *(54 n miles)*; warhead 90 kg (or nuclear?); altitude 27,432 m *(90,000 ft)*. 64 missiles.

2 SA-N-4 Gecko twin retractable launchers ❸; semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; warhead 50 kg; altitude 9.1-3,048 m *(30-10,000 ft)*; 40 missiles.

Guns: 2—130 mm/70 (twin) AK 130 ❹; 35/45 rds/min to 29 km *(16 n miles)*; weight of shell 33.4 kg.

6—30 mm/65 AK 650; ❺ 6 barrels per mounting; 3,000 rds/min to 2 km.

Torpedoes: 10—21 in *(533 mm)* (2 quin) tubes ❻. Combination of 53 cm torpedoes (see table at front of section).

A/S mortars: 2 RBU 6000 12-tubed trainable ❼; range 6,000 m; warhead 31 kg.

Countermeasures: Decoys: 2 PK 2 chaff launchers.

ESM/ECM: 8 Side Globe (jammers). 4 Rum Tub (intercept).

Weapons control: 2 Tee Plinth and 3 Tilt Pot optronic directors. 2 Punch Bowl satellite data receiving/targeting systems. 2 Bell Crown and 2 Bell Push datalinks.

Radars: Air search: Top Pair (Top Sail + Big Net) ❽; 3D; C/D-band; range 366 km *(200 n miles)* for bomber, 183 km *(100 n miles)* for 2 m^2 target.

Air/surface search: Top Steer ❾ or Top Plate *(Varyag)*; 3D; D/E-band.

Navigation: 3 Palm Frond; I-band.

Fire control: Front Door ❿; F-band (for SS-N-12). Top Dome ⓫; J-band (for SA-N-6). 2 Pop Group ⓬; F/H/I-band (for SA-N-4). 3 Bass Tilt ⓭; H/I-band (for Gatlings). Kite Screech ⓮; H/I/K-band (for 130 mm).

IFF: Salt Pot A and B. 2 Long Head.

Sonars: Bull Horn and Steer Hide (Platina); hull-mounted; active search and attack; low/medium frequency.

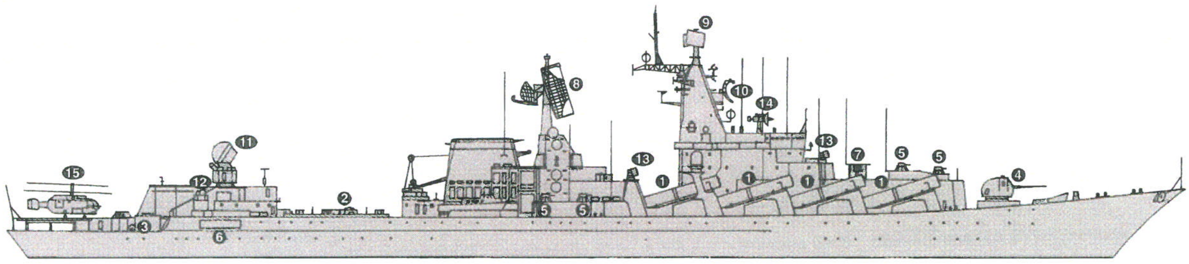
Helicopters: 1 Ka-27 Helix ⓯.

Programmes: Built at the same yard as the 'Kara' class. This is a smaller edition of the dual-purpose surface warfare/ASW *Kirov*, designed as a conventionally powered back-up for that class. The fourth of class, originally being completed for Ukraine, was transferred to Russia in July 1995 but returned to Ukraine in February 1999 for completion. However, work was not finished due to lack of funds. Re-sale back to Russia is a possibility. A fifth of class was started but cancelled in October 1990.

Structure: The notable gap abaft the twin funnels (SA-N-6 area) is traversed by a large crane which stows between the funnels. The hangar is recessed below the flight deck with an inclined ramp. The torpedo tubes are behind shutters in the hull below the Top Dome radar director aft. Air conditioned citadels for NBCD. There is a bridge periscope.

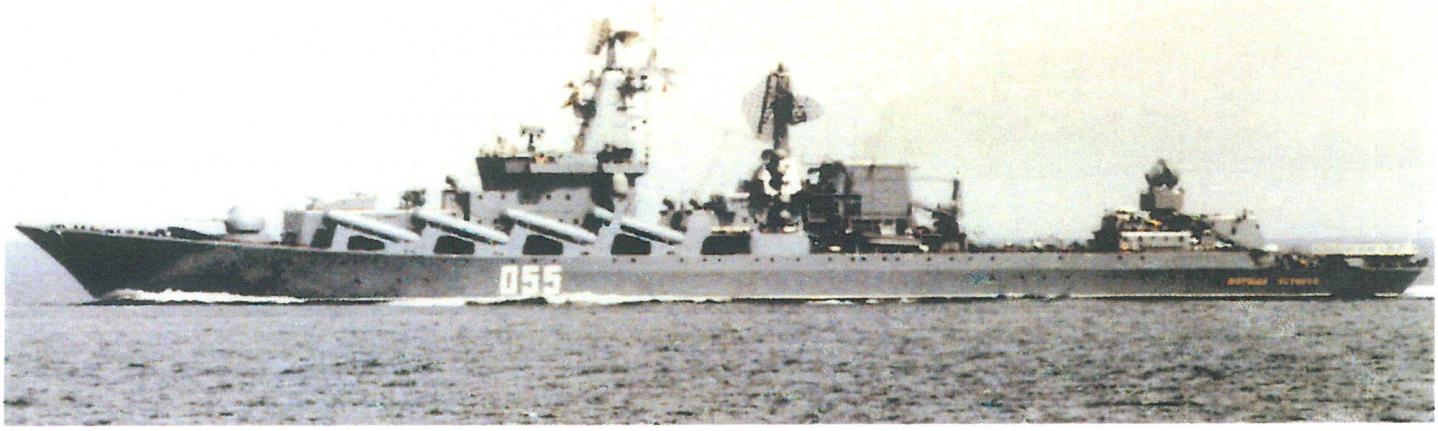
Operational: The SA-N-6 system effectiveness is diminished by having only one radar director. Over-the-horizon targeting for SS-N-12 provided by helicopter or Punch Bowl SATCOM. *Moskva* is based in the Black Sea Fleet at Sevastopol and conducted an Indian Ocean deployment in 2003. Her nine-year refit was beset by payment problems. Some funds were provided by the city of Moscow. *Marshal Ustinov* deployed to the Northern Fleet in March 1987 and completed refit at St Petersburg in May 1995 where she remained until January 1998, when she transferred back to the Northern Fleet and is based at Severomorsk and is active. *Varyag* transferred to Petropavlovsk in the Pacific in October 1990 and deployed to Japan and the Pacific during 2002.

UPDATED



VARYAG

(Scale 1 : 1,200), Ian Sturton / 0050017



MARSHAL USTINOV

*8/2003** / 0570897

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1 KARA (BERKOT-B) CLASS (PROJECT 1134B) (CGHM)

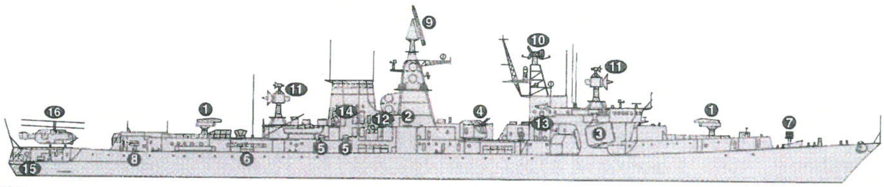
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
KERCH	713 (ex-711)	Nikolayev North (61 Kommuna)	30 Apr 1971	21 July 1972	25 Dec 1974

Displacement, tons: 7,650 standard; 9,900 full load
Dimensions, feet (metres): 568 × 61 × 22 *(173.2 × 18.6 × 6.7)*
Main machinery: COGAG; 4 gas turbines; 108,800 hp(m) *(80 MW)*; 2 gas turbines; 13,600 hp(m) *(10 MW)*; 2 shafts
Speed, knots: 32
Range, miles: 9,000 at 15 kt cruising turbines; 3,000 at 32 kt
Complement: 390 (49 officers)

Missiles: SAM: 2 SA-N-3 Goblet twin launchers ❶; semi-active radar homing to 55 km *(30 n miles)* at 2.5 Mach; warhead 80 kg; altitude 91.4-22,860 m *(300-75,000 ft)*; 72 missiles.
2 SA-N-4 Gecko twin launchers (twin either side of mast) ❷; semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; warhead 50 kg; altitude 9.1-3,048 m *(30-10,000 ft)*; 40 missiles.
A/S: 2 Raduga SS-N-14 Silex (Rastrub) quad launchers ❸; command guidance to 55 km *(30 n miles)* at 0.95 Mach; payload nuclear 5 kT or Type 40 torpedo or E53-72 torpedo. SSM version; range 35 km *(19 n miles)*; warhead 500 kg.
Guns: 4—3 in *(76 mm)*/60 (2 twin) ❹; 90 rds/min to 15 km *(8 n miles)*; weight of shell 6.8 kg.
4—30 mm/65 ❺; 6 barrels per mounting; 3,000 rds/min combined to 2 km.
Torpedoes: 10—21 in *(533 mm)* (2 quin) tubes ❻. Combination of 53 cm torpedoes (see table at front of section).
A/S mortars: 2 RBU 6000 12-tubed trainable ❼; range 6,000 m; warhead 31 kg.
2 RBU 1000 6-tubed (aft) ❽; range 1,000 m; warhead 55 kg; torpedo countermeasures.
Countermeasures: Decoys: 2 PK 2 chaff launchers. 1 BAT-1 torpedo decoy.
ESM/ECM: 8 Side Globe (jammers). 2 Bell Slam. 2 Bell Clout, 4 Rum Tub (intercept) (fitted on mainmast).
Weapons control: 4 Tilt Pot optronic directors. Bell Crown, Bike Pump and Hat Box datalinks.
Radars: Air search: Flat Screen ❾; E/F-band.
Air/surface search: Head Net C ❿; 3D; E-band; range 128 km *(70 n miles)*.
Navigation: 2 Don Kay; I-band. Don 2 or Palm Frond; I-band.
Fire control: 2 Head Light B/C ⓫; F/G/H-band (for SA-N-3 and SS-N-14). 2 Pop Group ⓬; F/H/I-band (for SA-N-4). 2 Owl Screech ⓭; G-band (for 76 mm). 2 Bass Tilt ⓮; H/I-band (for 30 mm).
Tacan: Fly Screen A or Fly Spike.
IFF: High Pole A. High Pole B.
Sonars: Bull Nose (Titan 2-MG 332); hull-mounted; active search and attack; low/medium frequency.
Mare Tail; VDS (Vega-M 325) ⓯; active search; medium frequency.

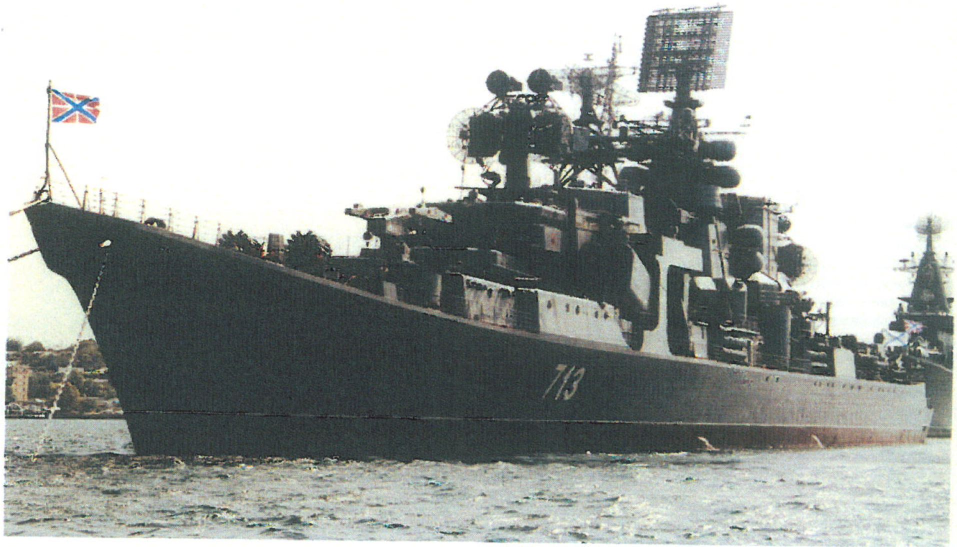
Helicopters: 1 Ka-27 Helix ⓰.

Programmes: Type name is *bolshoy protivolodochny korabl*, meaning large anti-submarine ship.
Modernisation: The Flat Screen air search radar, replaced Top Sail.



KERCH

(Scale 1 : 1,500), Ian Sturton / 0081651



KERCH

7/2000, Hartmut Ehlers / 0105541

Structure: The helicopter is raised to flight deck level by a lift. In addition to the 8 tubes for the SS-N-14 A/S system and the pair of twin launchers for SA-N-3 system with Goblet missiles, 'Kara' class mounts the SA-N-4 system in 2 silos, either side of the mast. The SA-N-3 system has only 2 loading doors per launcher and a larger launching arm.
Operational: Two of the class started refits in July 1987 and have been scrapped by the Ukraine. One more was scrapped in the Pacific in 1996. Two others *Ochakov* and *Petropavlovsk* are laid up in the Black Sea and Pacific respectively and are unlikely to go to sea again. Reports of work being done on *Ochakov* are not supported by photographs which show no visible change in the state of the ship between 1998 and late 2000. *Azov* was cannibalised for spares in 1998. *Kerch* is based in the Black Sea at Sevastopol and is believed to be operational although there have been no recent reports of activity.

UPDATED

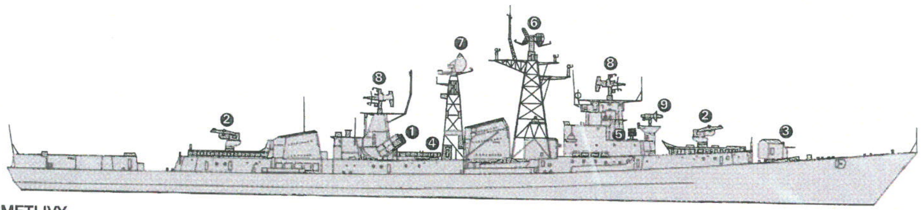
DESTROYERS

1 KASHIN (PROJECT 61/61M) CLASS (DDGM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SMETLIVY	810	Nikolayev North	15 July 1966	26 Aug 1967	25 Sep 1969

Displacement, tons: 4,010 standard; 4,750 full load (Kashin); 4,974 (mod Kashin)
Dimensions, feet (metres): 472.4 (479.7 mod) × 51.8 × 15.4 *(144 (146.2) × 15.8 × 4.7)*

Main machinery: COGAG; 4 DE 59 gas turbines; 72,000 hp(m) *(52.9 MW)*; 2 shafts
Speed, knots: 32. **Range, miles:** 4,000 at 18 kt; 1,520 at 32 kt
Complement: 280 (25 officers)



SMETLIVY

(Scale 1 : 1,200), Ian Sturton / 0126351

Missiles: SSM: 8 Zvezda SS-N-25 (KH 35 Uran) (2 quad) ❶.
SAM: 2 SA-N-1 Goa twin launchers ❷; command guidance to 31.5 km *(17 n miles)* at 2 Mach; warhead 72 kg; altitude 91.4-22,860 m *(300-75,000 ft)*; 32 missiles.
Guns: 2—3 in *(76 mm)*/60 (1 or 2 twin) ❸; 90 rds/min to 15 km *(8 n miles)*; weight of shell 6.8 kg.
Torpedoes: 5—21 in *(533 mm)* (quin) tubes ❹. Combination of 53 cm torpedoes (see table at front of section).
A/S mortars: 2 RBU 6000 12-tubed trainable ❺; range 6,000 m; warhead 31 kg; 120 rockets.
Countermeasures: Decoys: PK 16 chaff launchers (modified). 2 towed torpedo decoys.
ESM/ECM: 2 Bell Shroud. 2 Watch Dog.
Weapons control: 3 Tee Plinth and 4 Tilt Pot optronic directors.
Radars: Air/surface search: Head Net C ❻; 3D; E-band.
Big Net ❼; C-band.
Navigation: 2 Don 2/Don Kay/Palm Frond; I-band.
Fire control: 2 Peel Group ❽; H/I-band (for SA-N-1). 1 Owl Screech ❾; G-band (for guns).
IFF: High Pole B.
Sonars: Bull Nose (MGK 336) or Wolf Paw; hull-mounted; active search and attack; medium frequency.
Vega; VDS; active search; medium frequency.

Programmes: The first class of warships in the world to rely entirely on gas-turbine propulsion. Type name is *bolshoy protivolodochny korabl*, meaning large anti-submarine ship.
Modernisation: Modernised with a VDS aft, vice the after gun, and fitted for SS-N-25 in place of the RBU 1000 launchers.
Operational: Based in the Black Sea. Refitted from 1990 to 1996 but back in service in 1997. Deployed to the Indian Ocean in 2003 and remains active.
Sales: Additional ships of a modified design built for India. First transferred September 1980, the second in June 1982, the third in 1983, the fourth in August 1986 and the fifth and last in January 1988. *Smely* transferred to Poland 9 January 1988.

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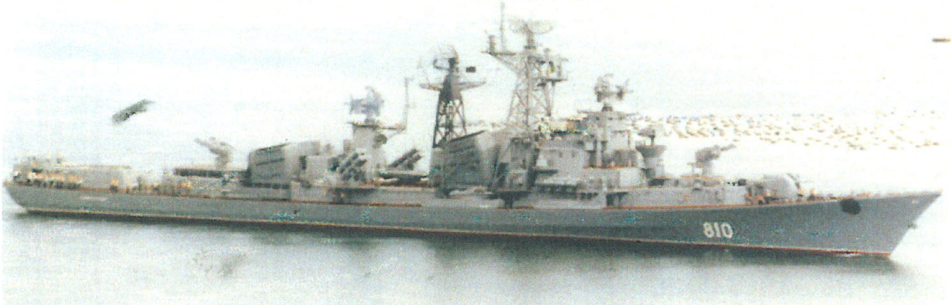

SMETLIVY

9/2003, Giorgio Ghiglione* / 0570924

1 UDALOY II (FREGAT) CLASS (PROJECT 1155.1) (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ADMIRAL CHABANENKO	650 (ex-437)	Yantar, Kaliningrad 820	15 Sep 1988	14 Dec 1992	20 Feb 1999

Displacement, tons: 7,700 standard; 8,900 full load
Dimensions, feet (metres): 536.4 × 63.3 × 24.6 *(163.5 × 19.3 × 7.5)*
Main machinery: COGAG; 2 gas turbines; 48,600 hp(m) *(35.72 MW)*; 2 gas turbines; 24,200 hp(m) *(17.79 MW)*; 2 shafts
Speed, knots: 28. **Range, miles:** 4,000 at 18 kt
Complement: 249 (29 officers)

Missiles: SSM: 8 Raduga SS-N-22 Sunburn (3M-82 Moskit) (2 quad) ❶; active/passive radar homing to 160 km *(87 n miles)* at 2.5 Mach (4.5 for attack); warhead nuclear or HE 300 kg; sea-skimmer.

SAM: 8 SA-N-9 Gauntlet (Klinok) vertical launchers ❷; command guidance; active radar homing to 12 km *(6.5 n miles)* at 2 Mach; warhead 15 kg. 64 missiles; 4 channels of fire.

SAM/Guns: 2 CADS-N-1 (Kashtan) ❸; each with twin 30 mm Gatling; combined with 8 SA-N-11 (Grisson) and Hot Flash/Hot Spot fire-control radar/optronic director. Laser beam guidance for missiles to 8 km *(4.4 n miles)*; warhead 9 kg; 9,000 rds/min combined to 1.5 km for guns.

A/S: Novator SS-N-15 (Starfish); inertial flight to 45 km *(24.3 n miles)*; payload Type 40 torpedo or nuclear, fired from torpedo tubes.

Guns: 2—130 mm/70 (twin) AK 130 ❹; 35-45 rds/min to 29.5 km *(16 n miles)*; weight of shell 33.4 kg.

Torpedoes: 8—21 in *(533 mm)* (2 quad tubes) ❺. Combination of 53 cm torpedoes (see table at front of section). The tubes are protected by flaps in the superstructure.

A/S mortars: 2 RBU 6000 ❻. 12-tubed trainable; range 6,000 m; warhead 31 kg.

Countermeasures: 8 PK 10 and 2 PK 2 chaff launchers ❼.

ESM/ECM: 2 Wine Glass (intercept). 2 Bell Shroud. 2 Bell Squat. 4 Half Cup laser warner. 2 Shot Dome.

Weapons control: M 145 radar and optronic system. 2 Bell Crown datalink. Band Stand ❽ datalink for SS-N-22; 2 Light Bulb, 2 Round House and 1 Bell Nest datalinks.

Radars: Air Search: Strut Pair II ❾; F-band.
Top Plate ❿; 3D; D/E-band.
Surface Search: 3 Palm Frond ⓫; I-band.
Fire control: 2 Cross Swords ⓬; K-band (for SA-N-9). Kite Screech ⓭; H/I/K-band (for 100 mm gun).
CCA: Fly Screen B ⓮.
IFF: Salt Pot B and C.

Sonars: Horse Jaw (Polinom); hull-mounted; active search and attack; medium/low frequency.
Horse Tail; VDS; active search; medium frequency.

Helicopters: 2 Ka-27 Helix A ⓯.

Programmes: A single ship follow-on class from the Udaloys. NATO designator Balcom 12. At least two more were projected with names *Admiral Basisty* and *Admiral Kucherov*; *Basisty* was scrapped in March 1994, and *Kucherov* was never started.

Structure: Similar size to the Udaloy and has the same propulsion machinery. Improved combination of weapon systems owing something to both the 'Sovremenny' and the 'Neustrashimy' classes. The distribution of SA-N-9 launchers may be the same as 'Udaloy' class. The torpedo tubes are protected by a hinged flap in the superstructure.

Operational: Sea trials started on 14 September 1995 from Baltiysk. Deployed to the Northern Fleet in March 1999 when the pennant number changed. Based at Severomorsk and is very active.

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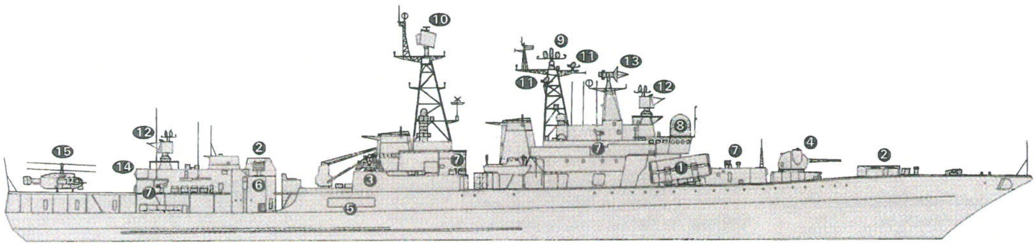
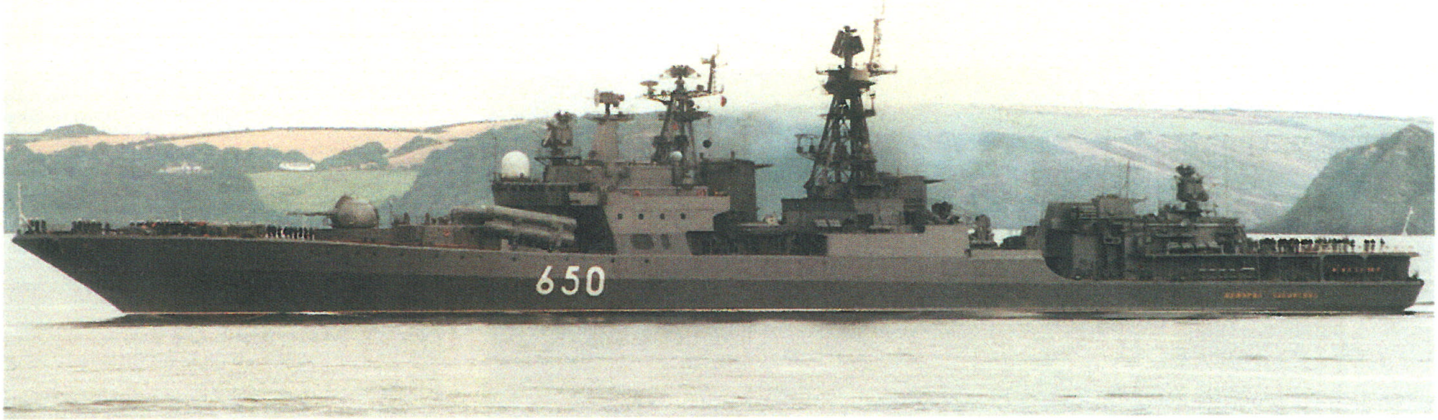
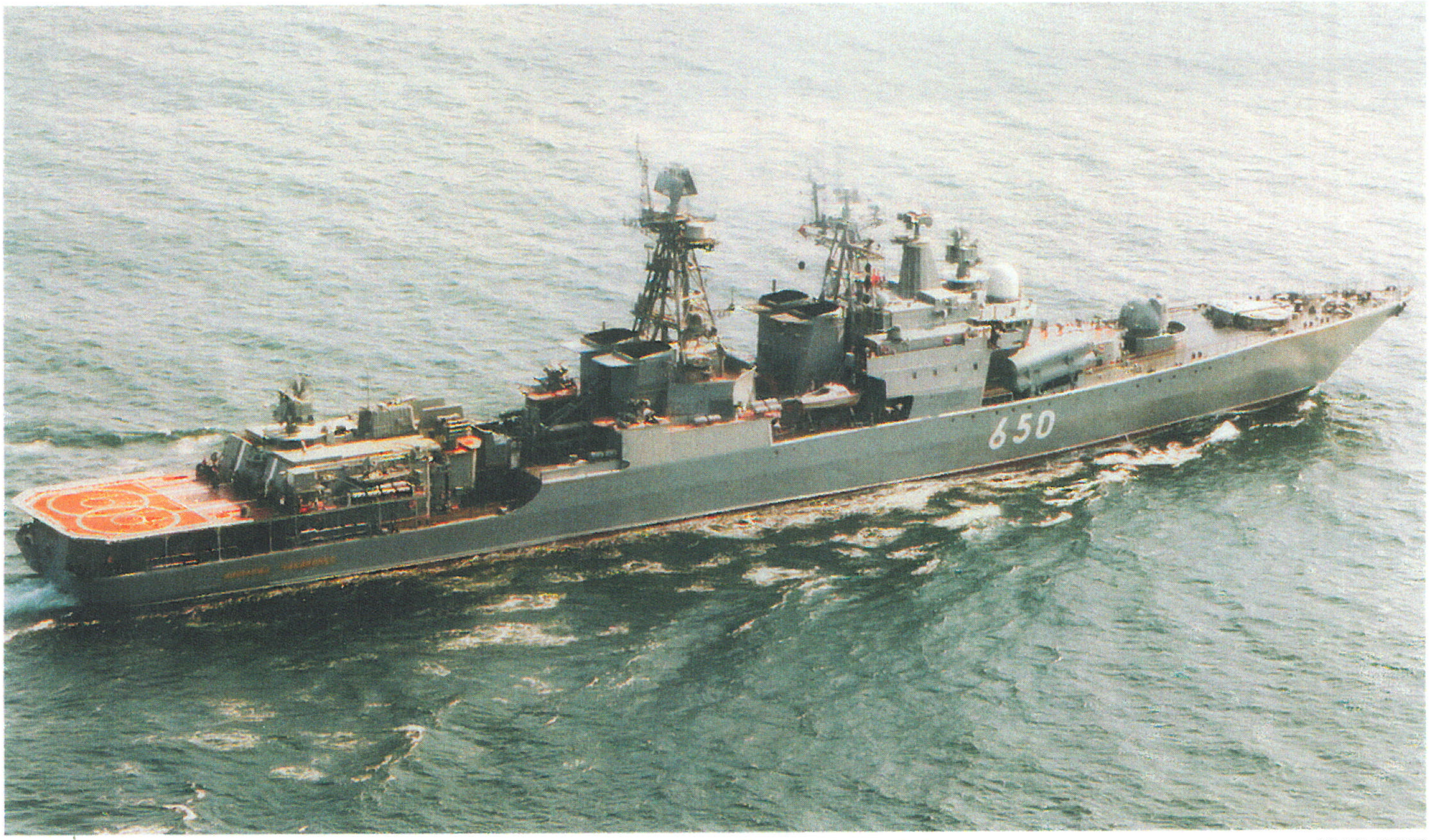


ADMIRAL CHABANENKO *(Scale 1 : 1,200), Ian Sturton* / 0569929



ADMIRAL CHABANENKO *8/2002, John Brodie* / 0528337



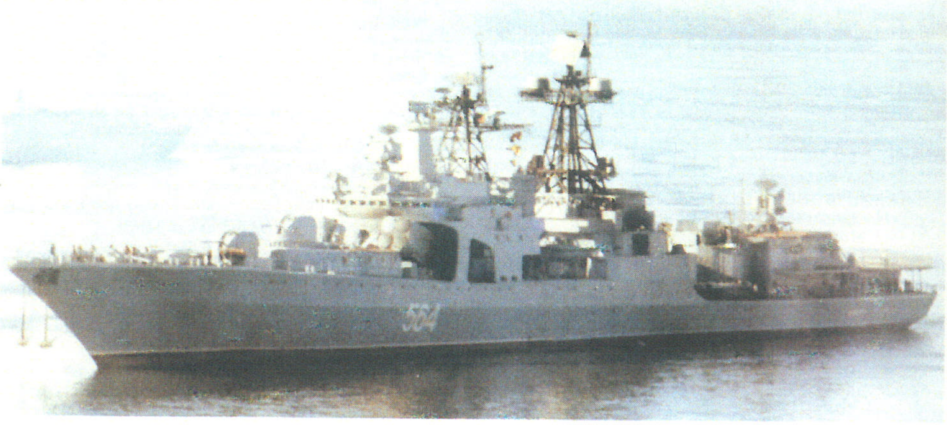
ADMIRAL CHABANENKO *8/2002* / 0528328

9 UDALOY (FREGAT) CLASS (PROJECT 1155) (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
VITSE ADMIRAL KULAKOV	400	Zhdanov Yard, Leningrad 190	7 Nov 1977	16 May 1980	29 Dec 1981
MARSHAL VASILEVSKY	687	Zhdanov Yard, Leningrad 190	22 Apr 1979	29 Dec 1981	8 Dec 1983
ADMIRAL TRIBUTS	564	Zhdanov Yard, Leningrad 190	19 Apr 1980	26 Mar 1983	30 Dec 1985
MARSHAL SHAPOSHNIKOV	543	Yantar, Kaliningrad 820	25 May 1983	27 Dec 1984	30 Dec 1985
SEVEROMORSK (ex-*Simferopol*, ex-*Marshal Budienny*)	619	Yantar, Kaliningrad 820	12 June 1984	24 Dec 1985	30 Dec 1987
ADMIRAL LEVCHENKO (ex-*Kharbarovsk*)	605	Zhdanov Yard, Leningrad 190	27 Jan 1982	21 Feb 1985	30 Sep 1988
ADMIRAL VINOGRADOV	572	Yantar, Kaliningrad 820	5 Feb 1986	4 June 1987	30 Dec 1988
ADMIRAL KHARLAMOV	678	Yantar, Kaliningrad 820	7 Aug 1986	29 June 1988	30 Dec 1989
ADMIRAL PANTELEYEV	548	Yantar, Kaliningrad 820	28 Jan 1988	7 Feb 1990	19 Dec 1991

Displacement, tons: 6,700 standard; 8,500 full load
Dimensions, feet (metres): 536.4 × 63.3 × 24.6 *(163.5 × 19.3 × 7.5)*
Flight deck, feet (metres): 65.6 × 59 *(20 × 18)*
Main machinery: COGAG; 2 gas turbines; 55,500 hp(m) *(40.8 MW)*; 2 gas turbines; 13,600 hp(m) *(10 MW)*; 2 shafts
Speed, knots: 29. **Range, miles:** 2,600 at 30 kt; 7,700 at 18 kt
Complement: 249 (29 officers)

Missiles: SAM: 8 SA-N-9 Gauntlet (Klinok) vertical launchers ❶; command guidance; active radar homing to 12 km *(6.5 n miles)* at 2 Mach; warhead 15 kg; altitude 3.4-12,192 m *(10-40,000 ft)*; 64 missiles; four channels of fire.
The launchers are set into the ships' structures with 6 ft diameter cover plates-4 on the forecastle, 2 between the torpedo tubes and 2 at the forward end of the after deckhouse between the RBUs.
A/S: 2 Raduga SS-N-14 Silex (Rastrub) quad launchers ❷; command guidance to 55 km *(30 n miles)* at 0.95 Mach; payload nuclear 5 kT or Type 40 torpedo or Type E53-72 torpedo. SSM version; range 35 km *(19 n miles)*; warhead 500 kg.
Guns: 2—3.9 in *(100 mm)*/59 ❸; 60 rds/min to 15 km *(8.2 n miles)*; weight of shell 16 kg.
4—30 mm/65 AK 630 ❹; 6 barrels per mounting; 3,000 rds/min combined to 2 km.
Torpedoes: 8—21 in *(533 mm)* (2 quad) tubes ❺. Combination of 53 cm torpedoes (see table at front of section).
A/S mortars: 2 RBU 6000 12-tubed trainable ❻; range 6,000 m; warhead 31 kg.
Mines: Rails for 26 mines.
Countermeasures: Decoys: 2 PK-2 and 8 PK-10 chaff launchers. US Masker type noise reduction.
ESM/ECM: 2 Foot Ball B (*Levchenko* onwards); 2 Wine Glass (intercept). 6 Half Cup laser warner (*Levchenko* onwards); 2 Bell Squat (jammers).



ADMIRAL TRIBUTS *6/2003*, B Lemachko* / 0570923

Weapons control: MP 145 radar and optronic system. 2 Bell Crown and Round House C datalink.
Radars: Air search: Strut Pair ❼; F-band.
Top Plate ❽; 3D; D/E-band.
Surface search: 3 Palm Frond ❾; I-band.
Fire control: 2 Eye Bowl ❿; F-band (for SS-N-14). 2 Cross Sword ⓫; K-band (for SA-N-9). Kite Screech ⓬; H/I/K-band (for 100 mm guns). 2 Bass Tilt ⓭; H/I/K-band (for 30 mm guns).
IFF: Salt Pot A and B. Box Bar A and B.
Tacan: 2 Round House.
CCA: Fly Screen B (by starboard hangar) ⓮. 2 Fly Spike B.

Sonars: Horse Jaw (Polinom); hull-mounted; active search and attack; low/medium frequency.
Mouse Tail; VDS; active search; medium frequency.

Helicopters: 2 Ka-27 Helix A ⓯.

Programmes: Design approved in October 1972. Successor to 'Kresta II' class but based on 'Krivak' class. Type name is *bolshoy protivolodochny korabl* meaning large anti-submarine ship. Programme stopped at 12 in favour of 'Udaloy II' class (Type 1155.1).
Structure: The two hangars are set side by side with inclined elevating ramps to the flight deck. Has pre-wetting NBCD equipment and replenishment at sea gear. Active stabilisers are fitted. The chaff launchers are on both sides of the foremast and inboard of the torpedo tubes. Cage Flask aerials are mounted on the mainmast spur and on the mast on top of the hangar. There are indications of a nuclear release mechanism, or interlock, on the lower tubes of the SS-N-14 launchers.
Operational: These general purpose ships have good sea-keeping and endurance and are the backbone of the fleet. Based as follows: Northern Fleet—*Severomorsk, Kharlamov, Kulakov, Vasilevsky* and *Levchenko*; Pacific Fleet—*Shaposhnikov, Panteleyev, Vinogradov* and *Tributs*. *Vinogradov* was in collision in April 2000 but was quickly repaired. *Severomorsk* deployed to St Petersburg for refit in June 1998 completing in late 2000, and *Levchenko* followed in November 1999 completing in 2001. The fourth of class, *Zakharov* was scrapped after a fire in March 1992. *Tributs* was in reserve in 1994 and had a machinery space fire in September 1995, was back in service in mid-1999. *Udaloy* and *Spiridonov* have been laid up or scrapped. *Kulakov* has been in refit since 1990 but may return to service in 2004. *Vasilevsky* was in refit during 2001 which is expected to complete in 2004.
Opinion: Obvious efforts are being made to keep this class in service at the expense of the Sovremennys.

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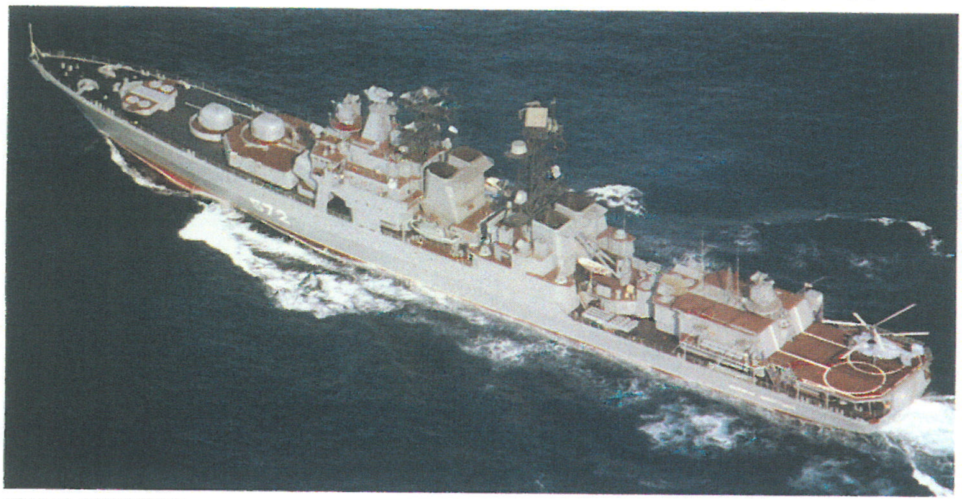
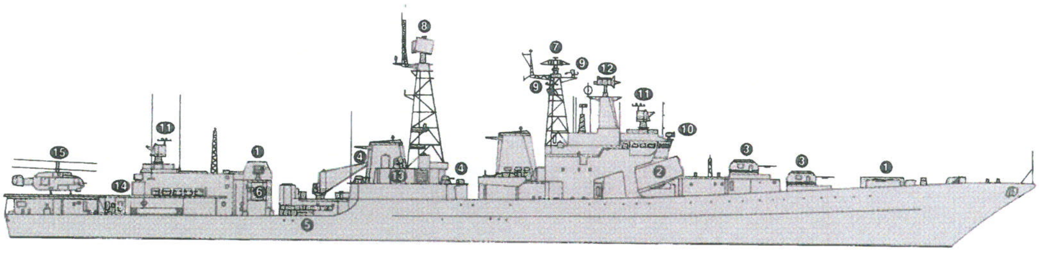


ADMIRAL VINOGRADOV *2/2001, Sattler/Steele* / 0126368



SEVEROMORSK *(Scale 1 : 1,200), Ian Sturton*

ADMIRAL LEVCHENKO *8/2003** / 0570895

5 SOVREMENNY (SARYCH) CLASS (PROJECT 956/956A) (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
BURNY	778	Zhdanov Yard, Leningrad (190)	4 Nov 1983	30 Dec 1986	30 Sep 1988
BYSTRY	715	Zhdanov Yard, Leningrad (190)	29 Oct 1985	28 Nov 1987	30 Sep 1989
BESPOKOINY	620	Zhdanov Yard, Leningrad (190)	18 Apr 1987	22 Feb 1992	29 Dec 1993
NASTOYCHIVY (ex-*Moskowski Komsomolets*)	610	Zhdanov Yard, Leningrad (190)	7 Apr 1988	15 Feb 1992	27 Mar 1993
BESSTRASHNY	434	Zhdanov Yard, Leningrad (190)	16 Apr 1988	31 Dec 1992	17 Apr 1994

Displacement, tons: 6,500 standard; 7,940 full load
Dimensions, feet (metres): 511.8 × 56.8 × 21.3
(156 × 17.3 × 6.5)
Main machinery: 4 KVN boilers; 2 GTZA-674 turbines; 99,500 hp(m) *(73.13 MW)* sustained; 2 shafts; bow thruster
Speed, knots: 32
Range, miles: 2,400 at 32 kt; 6,500 at 20 kt; 4,000 at 14 kt
Complement: 296 (25 officers) plus 60 spare

Missiles: SSM: 8 Raduga SS-N-22 Sunburn (3M-80 Zubr) (2 quad) launchers ❶; active/passive radar homing to 110 km *(60 n miles)* at 2.5 (4.5 for attack) Mach; warhead nuclear 200 kT or HE 300 kg; sea-skimmer. From *Bespokoiny* onwards the launchers are longer and fire a modified missile (3M-82 Moskit) with a range of 160 km *(87 n miles)*.
SAM: 2 SA-N-7 Gadfly 3S 90 (Uragan) ❷; command/semi-active radar and IR homing to 25 km *(13.5 n miles)* at 3 Mach; warhead 70 kg; altitude 15-14,020 m *(50-46,000 ft)*; 44 missiles. Multiple channels of fire. From *Bespokoiny* onwards the same launcher is used for the SA-N-17 Grizzly/SA-N-12 Yezh.
Guns: 4—130 mm/70 (2 twin) AK 130 ❸; 35-45 rds/min to 29.5 km *(16 n miles)*; weight of shell 33.4 kg.
4—30 mm/65 AK 630 ❹; 6 barrels per mounting; 3,000 rds/min combined to 2 km.
Torpedoes: 4—21 in *(533 mm)* (2 twin) tubes ❺. Combination of 53 cm torpedoes (see table at front of section).
A/S mortars: 2 RBU 1000 (Smerch 3) 6-barrelled ❻; range 1,000 m; warhead 100 kg; 120 rockets carried. Torpedo countermeasure.
Mines: Mine rails for up to 22.
Countermeasures: Decoys: 8 PK 10 and 2 PK 2 chaff launchers.
ESM/ECM: 4 Foot Ball (some variations including 2 Bell Shroud and 2 Bell Squat). 6 Half Cup laser warner.
Combat data systems: Sapfir-U.
Weapons control: 1 Squeeze Box optronic director and laser rangefinder ❼. Band Stand ❽ datalink for SS-N-22. Bell Nest, 2 Light Bulb and 2 Tee Pump datalinks.
Radars: Air search: Top Plate (MR-750 Fregat) ❾; 3D; D/E-band.
Surface search: 3 Palm Frond (MR 212/201) ❿; I-band.
Fire control: 6 Front Dome ⓫; F-band (for SA-N-7/17). Kite Screech (MR-184) ⓬; H/I/K-band (for 130 mm guns). 2 Bass Tilt ⓭; H/I-band (for 30 mm guns).
IFF: Salt Pot A and B. High Pole A and B. Long Head.
Tacan: 2 Light Bulb.
Sonars: Bull Horn (MGK-335 Platina) and Whale Tongue; hull-mounted; active search and attack; medium frequency.

Helicopters: 1 Kamov Ka-27 Helix ⓮.

Programmes: Type name is *eskadrenny minonosets* meaning destroyer. From *Bespokoiny* onwards the class is known as 956A. Total of 17 built for Russia, two (hulls 18 and 19) for China, and one more *(Bulny)* which is unlikely to be completed unless for export.
Structure: Telescopic hangar. The fully automatic 130 mm gun was first seen in 1976. Chaff launchers are fitted on both sides of the foremast and either side of the after SAM launcher. A longer range version of SS-N-22 has been introduced in the Type 956A. This has slightly longer launch tubes. Also the SAM system has been improved to take the SA-N-17. There are also some variations in the EW fit.
Operational: A specialist surface warfare ship complementing the ASW-capable 'Udaloy' class. Based as follows: Northern Fleet—*Besstrashny*. Pacific Fleet—*Burny* and *Bystry*. Baltic Fleet-*Nastoychivy* and *Bespokoiny*. So far 12 others have paid off or are non-operational although *Bystry* completed refit in 2002. Steam-plant reliability has been a class problem.
Sales: Two others which were near completion in 1996, were sold to China and sailed in December 1999 and December 2000 respectively, from the Baltic to the South China Sea. A contract for the procurement of two new ships was signed by the Chinese government on 3 January 2002.

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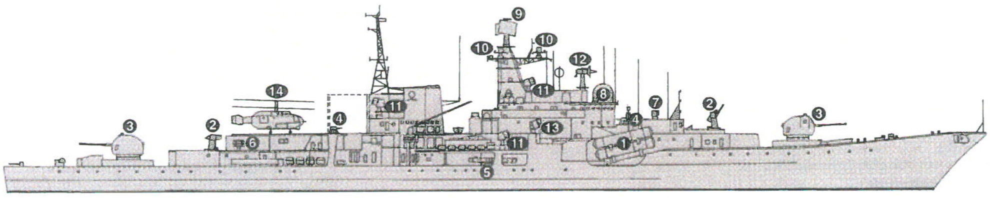
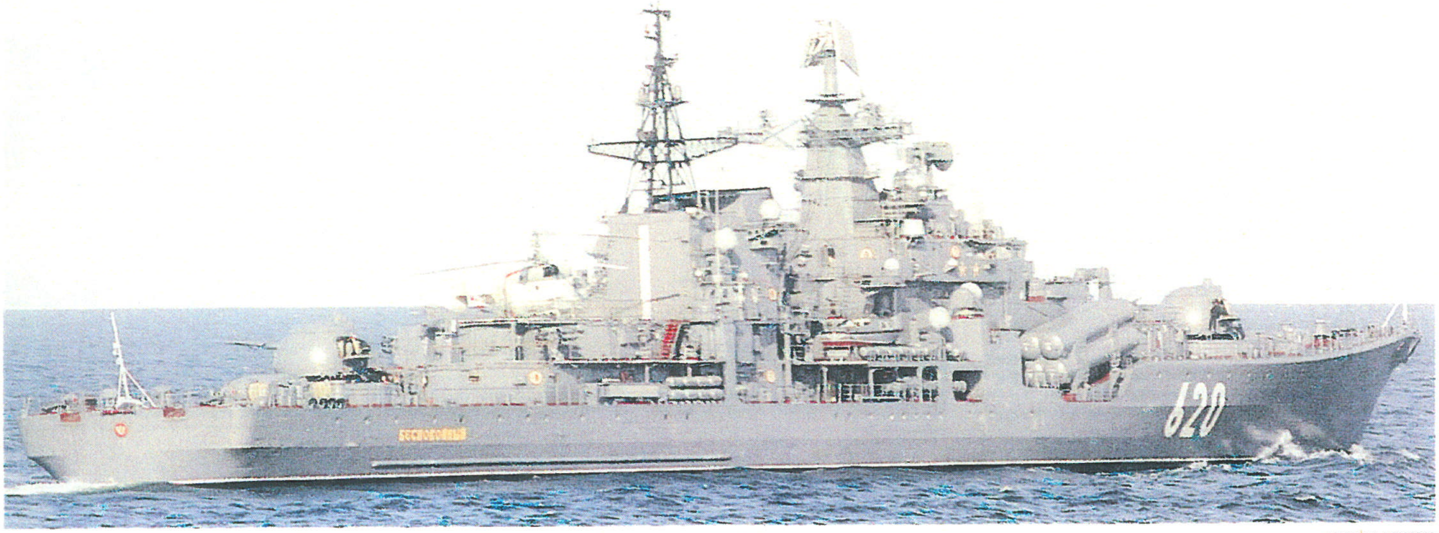
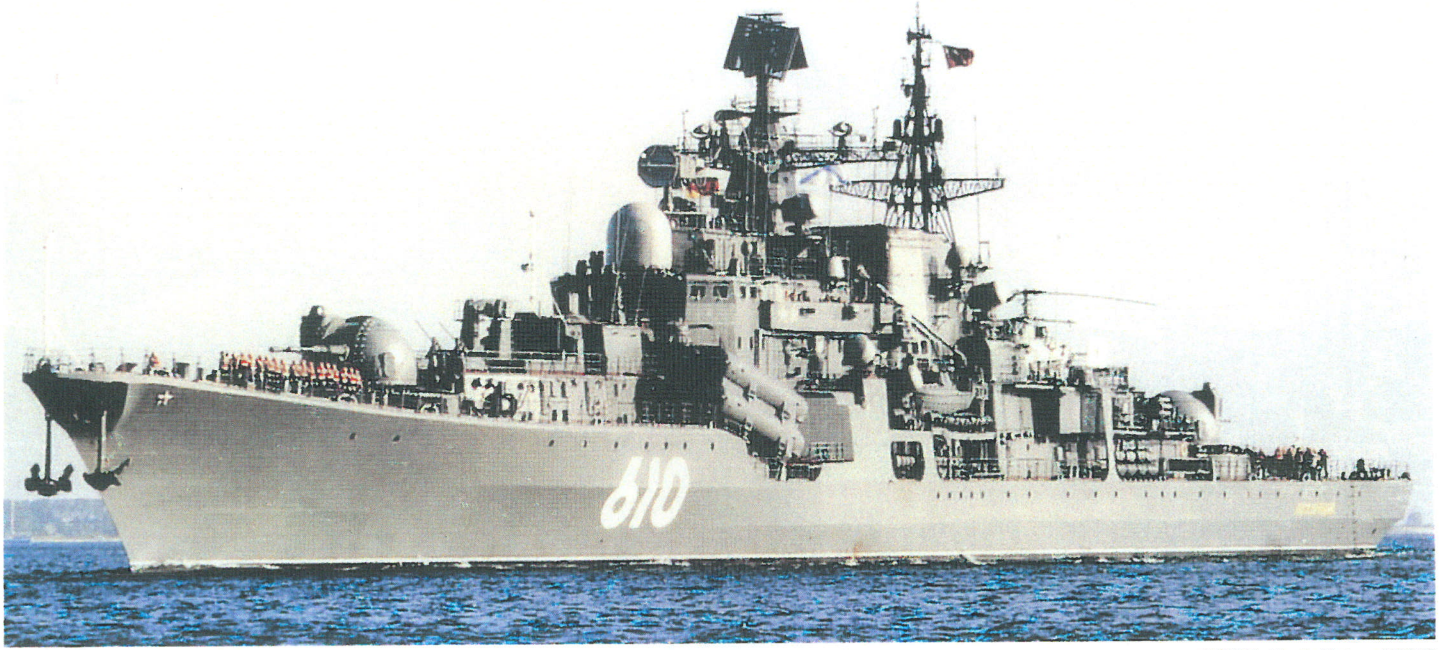


BURNY *(Scale 1 : 1,200), Ian Sturton* / 0019027



BESPOKOINY *5/2001* / 0126388



NASTOYCHIVY *6/2003*, Martin Mokrus* / 0570893

FRIGATES

Note: The 'Grom' class (Project 1244.1) *Novik* laid down at Yantar Yard, Kaliningrad in July 1997. While little progress has been made, there have been reports that it may be completed as a training ship.

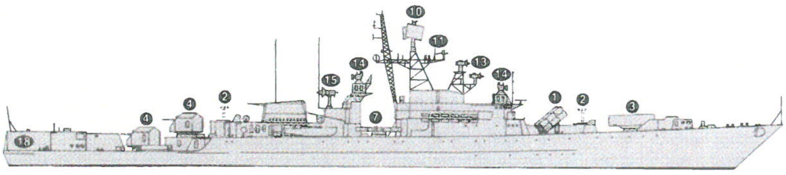
8 KRIVAK (PROJECT 1135/1135M/1135MP) CLASS (FFM)

Name	*Type*	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ZHARKY	I Mod	937	Zhdanov, Leningrad (190)	16 Apr 1974	3 Nov 1975	29 June 1976
LEGKY	I Mod	930	Zhdanov, Leningrad (190)	22 Apr 1976	1 Apr 1977	29 Sep 1977
NEUKROTIMY	II	731	Yantar, Kaliningrad	22 Jan 1976	27 June 1977	30 Dec 1977
LETUCHY	I	661	Zhdanov, Leningrad	9 Mar 1977	19 Mar 1978	10 Aug 1978
PYLKY	I Mod	702	Zhdanov, Leningrad	16 May 1977	20 Aug 1978	28 Dec 1978
ZADORNY	I	955	Zhdanov, Leningrad	10 Nov 1977	25 Mar 1979	15 Sep 1979
LADNY	I	801	Kamish-Burun, Kerch	25 May 1979	7 May 1980	29 Dec 1980
PYTLIVY	II	808	Yantar, Kaliningrad	27 June 1979	16 Apr 1981	30 Nov 1981

Displacement, tons: 3,100 standard; 3,650 full load
Dimensions, feet (metres): 405.2 × 46.9 × 24 (sonar) *(123.5 × 14.3 × 7.3)*
Main machinery: COGAG; 2 M8K gas-turbines; 55,500 hp(m) *(40.8 MW)*; 2 M 62 gas-turbines; 13,600 hp(m) *(10 MW)*; 2 shafts
Speed, knots: 32. **Range, miles:** 4,000 at 14 kt; 1,600 at 30 kt
Complement: 194 (18 officers)

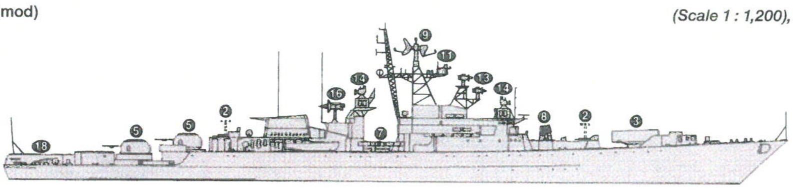
Missiles: SSM: 8 Zvezda SS-N-25 (KH 35 Uran) (2 quad) ❶; (Krivak I after modernisation); fitted for but not with.
SAM: 2 SA-N-4 Gecko (Zif 122) twin launchers ❷; Osa-M semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; warhead 50 kg; altitude 9.1-3,048 m *(30-10,000 ft)*; 40 missiles (20 in Krivak III).
A/S: Raduga SS-N-14 Silex quad launcher ❸; command guidance to 55 km *(30 n miles)* at 0.95 Mach; payload nuclear 5 kT or Type 40 torpedo or Type E53-72 torpedo. SSM version; range 35 km *(19 n miles)*; warhead 500 kg.
Guns: 4—3 in *(76 mm)*/60 (2 twin) (Krivak I) ❹; 90 rds/min to 15 km *(8 n miles)*; weight of shell 6.8 kg.
2—3.9 in *(100 mm)*/59 (Krivak II) ❺; 60 rds/min to 15 km *(8.2 n miles)*; weight of shell 16 kg.
Torpedoes: 8—21 in *(533 mm)* (2 quad) tubes ❼. Combination of 53 cm torpedoes (see table at front of section).
A/S mortars: 2 RBU 6000 12-tubed trainable ❽; (not in modernised Krivak I); range 6,000 m; warhead 31 kg.
Mines: Capacity for 16.
Countermeasures: Decoys: 4 PK 16 or 10 PK 10 chaff launchers. Towed torpedo decoy.
ESM/ECM: 2 Bell Shroud. 2 Bell Squat. Half Cup laser warning (in some).
Radars: Air search: Head Net C ❾; 3D; E-band; or Half Plate (Krivak I mod) ❿.
Surface search: Don Kay or Palm Frond or Don 2 or Spin Trough ⓫; I-band.
Fire control: 2 Eye Bowl ⓭; F-band (for SS-N-14). 2 Pop Group (one in Krivak III) ⓮; F/H/I-band (for SA-N-4). Owl Screech (Krivak I) ⓯; G-band. Kite Screech (Krivak II and III) ⓰; H/I/K-band. Plank Shave (Harpun B) (for SS-N-25) not fitted.
IFF: High Pole B.
Sonars: Bull Nose (MGK-335S or MG-332); hull-mounted; active search and attack; medium frequency.
Mare Tail (MGK-345) or Steer Hide (some Krivak Is after modernisation); VDS (MG 325) ⓲; active search; medium frequency.

Programmes: Type name was originally *bolshoy protivolodochny korabl*, meaning large anti-submarine ship. Changed in 1977-78 to *storozhevoy korabl* meaning escort ship. The naval Krivaks are known as the 'Burevestnik' class and the border guard ships as 'Nerey' class.
Modernisation: Top Plate radar has replaced Head Net in some and a more modern VDS is also fitted. Ships converted with SS-N-25 launchers are *Legky* and *Pylky*. This programme has stopped and missiles are not embarked. The launchers replaced the RBU mountings.



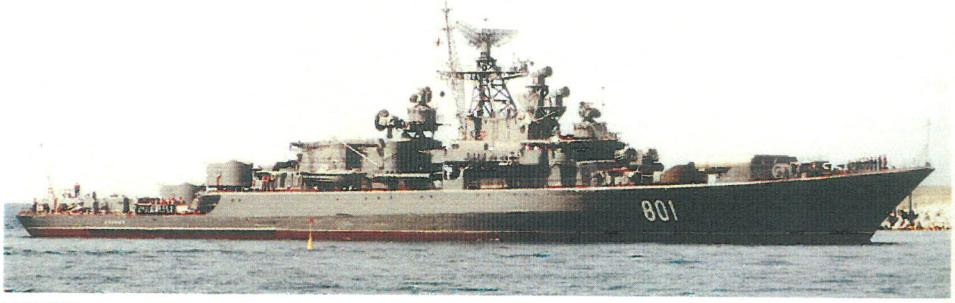
KRIVAK I (mod)

(Scale 1 : 1,200), Ian Sturton



KRIVAK II

(Scale 1 : 1,200), Ian Sturton



LADNY (I)

7/2000, Hartmut Ehlers / 0105545

PYTLIVY (II)

*8/2003** / 0570894

Structure: The modified 'Krivak I' class has a larger bow. 'Krivak II' class has Y-gun mounted higher than in Krivak I and the break to the quarterdeck further aft apart from other variations noted above.

Operational: Northern Fleet: *Zadorny, Legky, Zharky*. Black Sea: *Ladny, Pytlivy*. Baltic: *Pylky, Neukrotimy*. Pacific: *Letuchy*.

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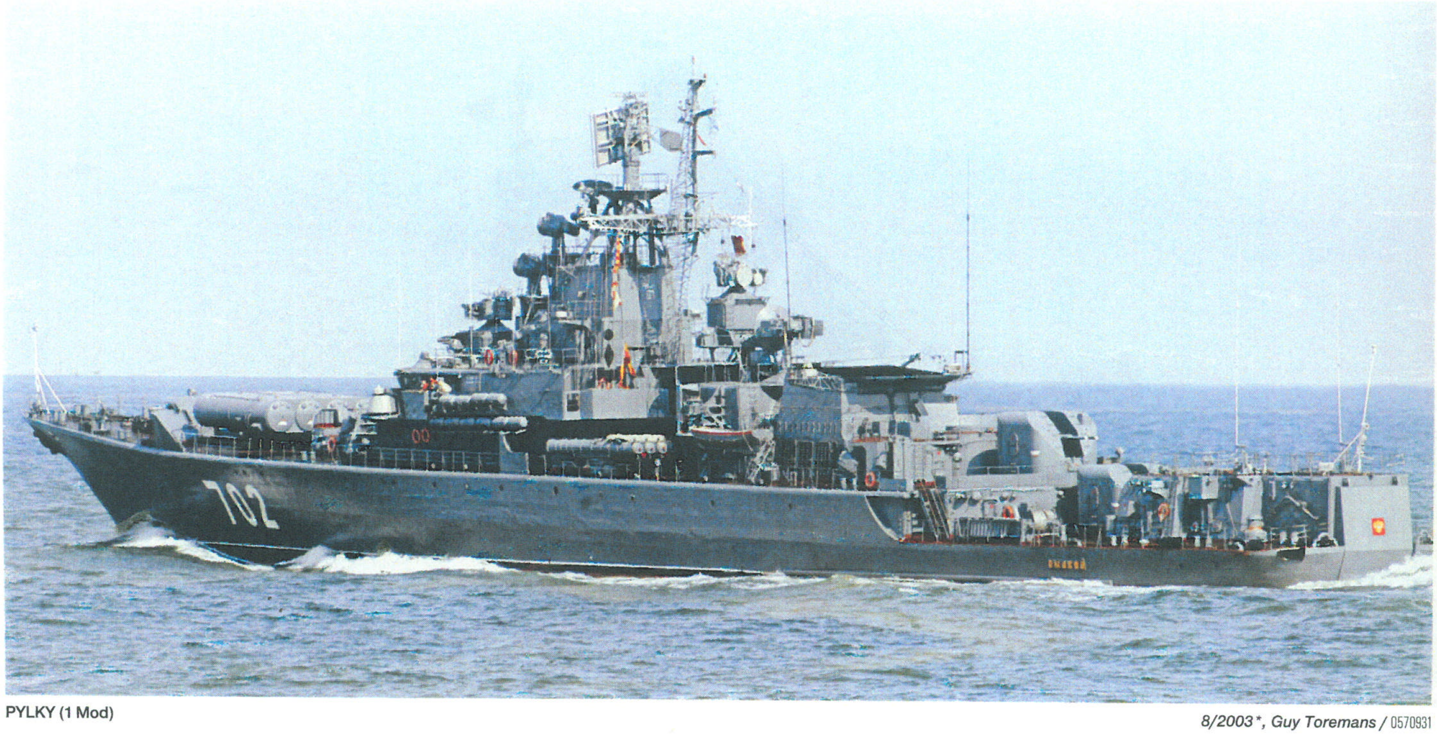


PYLKY (1 Mod)

8/2003, Guy Toremans* / 0570931

1 NEUSTRASHIMY (JASTREB) CLASS (PROJECT 1154) (FFHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
NEUSTRASHIMY	712	Yantar, Kaliningrad	27 Mar 1987	25 May 1988	24 Jan 1993

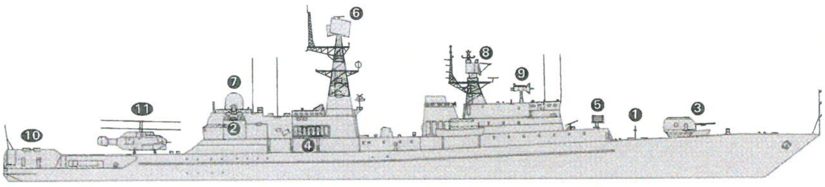
Displacement, tons: 3,450 standard; 4,250 full load
Dimensions, feet (metres): 425.3 oa; 403.5 wl × 50.9 × 15.7 *(129.6; 123 × 15.5 × 4.8)*
Main machinery: COGAG; 2 gas turbines; 48,600 hp(m) *(35.72 MW)*; 2 gas turbines; 24,200 hp(m) *(17.79 MW)*; 2 shafts
Speed, knots: 30. **Range, miles:** 4,500 at 16 kt
Complement: 210 (35 officers)

Missiles: SSM: Fitted for but not with 16 SS-N-25 (4 quad). SS-CX-5 Sapless (possibly a version of SS-N-22 (Moskit M)) may be carried (see *Torpedoes*).
SAM: 4 SA-N-9 Gauntlet (Klinok) octuple vertical launchers ❶; command guidance; active radar homing to 12 km *(6.5 n miles)* at 2 Mach; warhead 15 kg. 32 missiles.
SAM/Guns: 2 CADS-N-1 (Kortik/Kashtan) (3M87) ❷; each has a twin 30 mm Gatling combined with 8 SA-N-11 (Grisson) and Hot Flash/Hot Spot fire-control radar/optronic director. Laser beam guidance for missiles to 8 km *(4.4 n miles)*; warhead 9 kg; 9,000 rds/min (combined) to 1.5 km (for guns).
A/S: SS-N-15/16; inertial flight to 120 km *(65 n miles)*; payload Type 40 torpedo or nuclear warhead; fired from torpedo tubes.

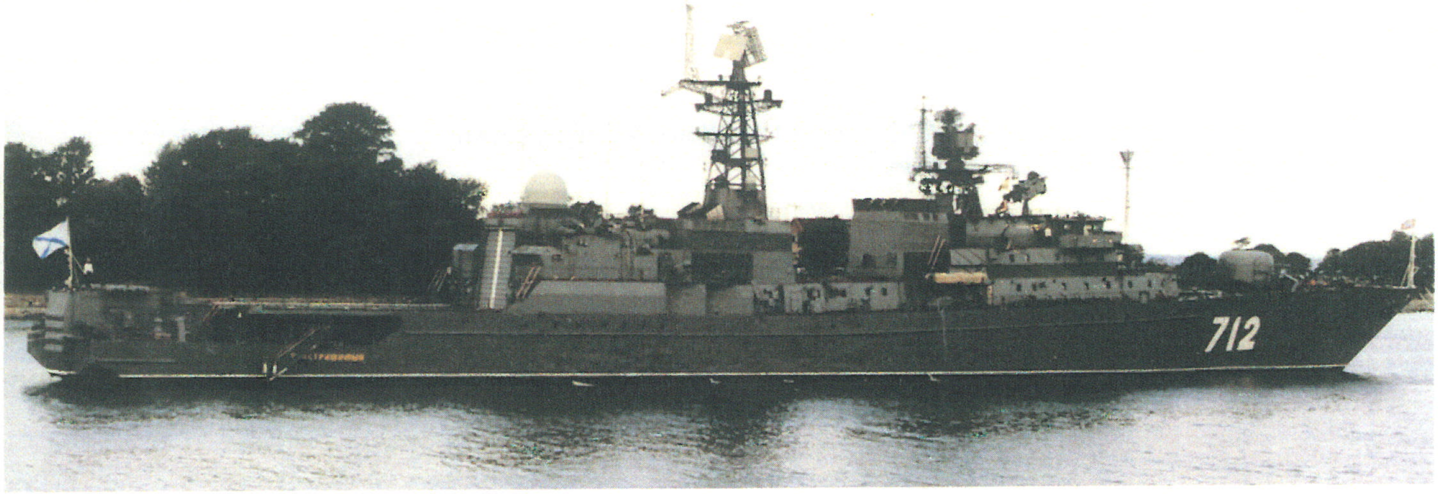
Guns: 1—3.9 in *(100 mm)*/59 A 190E ❸; 60 rds/min to 15 km *(8.2 n miles)*; weight of shell 16 kg.
Torpedoes: 6—21 in *(533 mm)* tubes combined with A/S launcher ❹; can fire SS-N-15/16 missiles with Type 40 anti-submarine torpedoes or 53 cm torpedoes (see table at front of section).
A/S mortars: 1 RBU 12,000 ❺; 10-tubed trainable; range 12,000 m; warhead 80 kg.
Mines: 2 rails.
Countermeasures: Decoys: 8 PK 10 and 2 PK 16 chaff launchers.
ESM/ECM: Intercept and jammers. 2 Foot Ball; 2 Half Hat; 4 Half Cup laser intercept.
Weapons control: 2 Bell Crown datalink.
Radars: Air search: Top Plate ❻; 3D; D/E-band.
Air/Surface search: Cross Dome ❼; E/F-band.
Navigation: 2 Palm Frond; I-band.
Fire control: Cross Sword ❽ (for SAM); K-band. Kite Screech B ❾ (for SSM and guns); I-band.
IFF: 2 Salt Pot; 4 Box Bar.
Sonars: Ox Yoke and Whale Tongue; hull-mounted; active search and attack; medium frequency.
Ox Tail; VDS ❿ or towed sonar array.

Helicopters: 1 Ka-27 Helix ⓫.

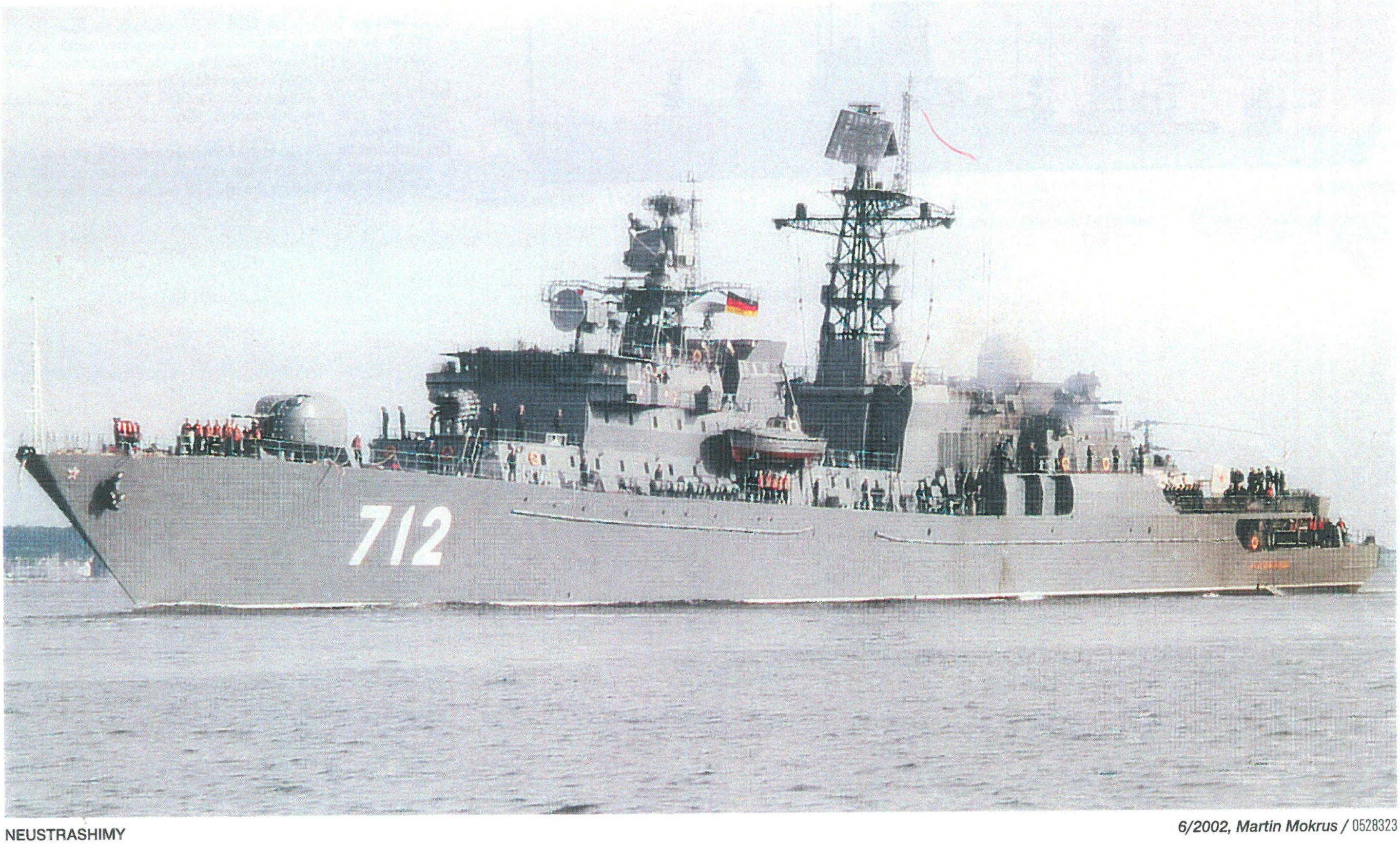
Programmes: At least four of the class were planned. The first of the class started sea trials in the Baltic in December 1990. Second of class (*Yaroslav Mudryy*) was launched in May 1991, but in October 1988 the shipyard stated that the hull would be sold for scrap. However, after several years' inaction, it was reported in 2002 that work had recommenced and it is likely that the ship will be sold to the Russian Navy or for export. The export version of the ship is known as 'Korsar'. The third ship (*Tuman*) was launched in July 1993 with only the hull completed and work stopped in December 1997 without any work being done. The future of the ship is uncertain.
Structure: Slightly larger than the Krivak and has a helicopter which is a standard part of the armament of modern Western frigates. There are two horizontal launchers at main deck level on each side of the ship, angled at 18° from forward. These double up for A/S missiles of the SS-N-15/16 type using a 'plunge-fly-plunge' launch and flight and normal torpedoes. Similar launchers are behind shutters in the last three of the 'Kirov' class. The helicopter deck extends across the full width of the ship. The after funnel is unusually flush decked but both funnels have been slightly extended after initial sea trials. Attempts have been made to incorporate stealth features. Main propulsion is the same as the 'Udaloy II' class. Reported as having a basic computerised combat data system.
Operational: Based in the Baltic at Baltiysk. Active in 2003.
UPDATED



NEUSTRASHIMY
(Scale 1 : 1,200), Ian Sturton / 0569927



NEUSTRASHIMY *7/2003*, Freddy Philips* / 0570922

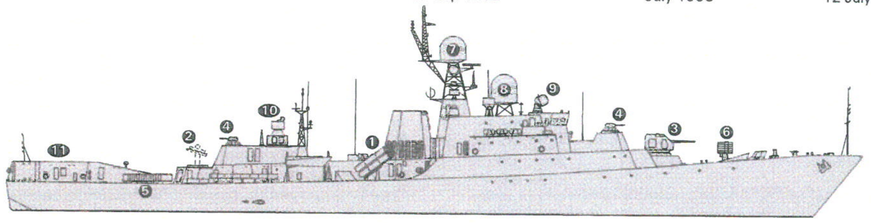


NEUSTRASHIMY *6/2002, Martin Mokrus* / 0528323

1 + 1 GEPARD (PROJECT 11661) CLASS (FFGM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
TATARSTAN (ex-*Albatros*)	691	Zelenodolsk, Kazan, Tartarstan	15 Sep 1992	July 1993	12 July 2002

Displacement, tons: 1,560 standard; 1,930 full load
Dimensions, feet (metres): 334.6 × 44.6 × 14.4 *(102 × 13.6 × 4.4)*
Main machinery: CODOG; 2 gas turbines; 30,850 hp(m) *(23.0 MW)*; 1 Type 61D diesel; 7,375 hp(m) *(5.5 MW)*; 2 shafts; cp props
Speed, knots: 26 (18 on diesels)
Range, miles: 5,000 at 10 kt
Complement: 110 (accommodation for 131)
Missiles: SSM: 8 Zvezda SS-N-25 (KH 35 Uran) (2 quad) ❶; IR or radar homing to 130 km *(70.2 n miles)* at 0.9 Mach; warhead 145 kg; sea-skimmer.
SAM: 1 SA-N-4 Gecko twin launcher ❷; semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; warhead 50 kg. 20 weapons.
Guns: 1—3 in *(76 mm)*/60 AK-176 ❸; 120 rds/min to 15 km *(8 n miles)*; weight of shell 5.9 kg.
2—30 mm/65 AK-630 ❹; 6 barrels per mounting; 3,000 rds/min combined to 2 km.
Torpedoes: 4—21 in *(533 mm)* (2 twin) tubes ❺ (probably not fitted).
A/S mortars: 1 RBU 6000 12-tubed trainable ❻ (probably not fitted).
Mines: 2 rails. 48 mines.
Countermeasures: Decoys: 4 PK 16 chaff launchers.
ESM/ECM: 2 Bell Shroud. 2 Bell Squat. Intercept and jammers.
Weapons control: 2 Light Bulb datalink. Hood Wink and Odd Box optronic systems. Band Stand ❼ datalink.
Radars: Air/surface search: Cross Dome ❽; E/F-band.
Fire control: Bass Tilt ❾; H/I-band (for guns). Pop Group ❿; F/H/I-band (for SAM). Garpun-B (for SSM); I/J-band.
Navigation: Nayada; I-band.
IFF: 2 Square Head. 1 Salt Pot B.
Sonars: Ox Yoke; hull-mounted; active search and attack; medium frequency (probably not fitted).
Ox Tail (probably not fitted); VDS ⓫; active search and attack; medium frequency.



TATARSTAN

(Scale 1 : 900), Ian Sturton / 0528396

TATARSTAN

7/2002, Military Parade / 0528304

Programmes: Intended as a successor to the 'Koni' class, the 'Gepard' family of ships, of which there were some five variants, was developed with export in mind. The first of class *Yastreb* was laid down in 1988 but was later broken up in 1992. The second and third of class were to have been exported abroad but, following the completion of *Tatarstan* for the Russian Navy, a second ship *Dagestan* (ex-*Burevestnik*) is expected to follow by 2005.

Operational: Flagship of the Caspian Flotilla, the newly commissioned *Tatarstan* took part in the large Caspian naval exercise in August 2002.

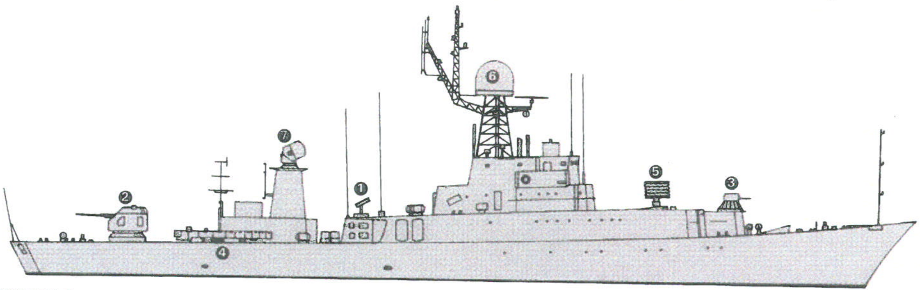
UPDATED

11 PARCHIM II CLASS (PROJECT 1331) (FFLM)

MPK 67	301
MPK 99	308
MPK 105	245
MPK 192	304
MPK 205	311
MPK 213	222
MPK 216	258
MPK 224	218
MPK 227	233
MPK 228	244
MPK 229	232

Displacement, tons: 769 standard; 960 full load
Dimensions, feet (metres): 246.7 × 32.2 × 14.4 *(75.2 × 9.8 × 4.4)*
Main machinery: 3 Type M 504A diesels; 10,812 hp(m) *(7.95 MW)* sustained; 3 shafts
Speed, knots: 26. **Range, miles:** 2,500 at 12 kt
Complement: 70 (8 officers)

Missiles: SAM: 2 SA-N-5 Grail quad launchers ❶; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg.
Guns: 1—3 in *(76 mm)*/66 AK 176 ❷; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
1—30 mm/65 AK 630 ❸; 6 barrels; 3,000 rds/min combined to 2 km.
Torpedoes: 4—21 in *(533 mm)* (2 twin) tubes ❹. Combination of 53 cm torpedoes (see table at front of section).



PARCHIM II

(Scale 1 : 600), Ian Sturton

A/S mortars: 2 RBU 6000 12-tubed trainable ❺; range 6,000 m; warhead 31 kg. 96 weapons.
Depth charges: 2 racks.
Mines: Rails fitted.
Countermeasures: Decoys: 2 PK 16 chaff launchers.
ESM: 2 Watch Dog; intercept.
Weapons control: Hood Wink and Odd Box optronic systems.
Radars: Air/surface search: Cross Dome ❻; E/F-band.
Navigation: TSR 333 or Nayala or Kivach III; I-band.
Fire control: Bass Tilt ❼; H/I-band.
IFF: High Pole A.
Sonars: Bull Horn; hull-mounted; active search and attack; medium frequency.
Lamb Tail; helicopter type VDS; high frequency.

Programmes: Built in the GDR at Peenewerft, Wolgast for the USSR. First one commissioned 19 December 1986 and the last on 6 April 1990. MPK 228 is named *Bashkortostan*, MPK 229 is named *Kalmykia* and MPK 205 *Kazanets*.

Structure: Similar design to the ex-GDR 'Parchim I' class now serving with the Indonesian Navy but some armament differences.

Operational: All operate in the Baltic and are based at Baltiysk or Kronshtadt. All of the class refitted at Rostock in 1994-95. MPK 228 damaged by fire in 1999 but has been repaired.

UPDATED

MPK 228

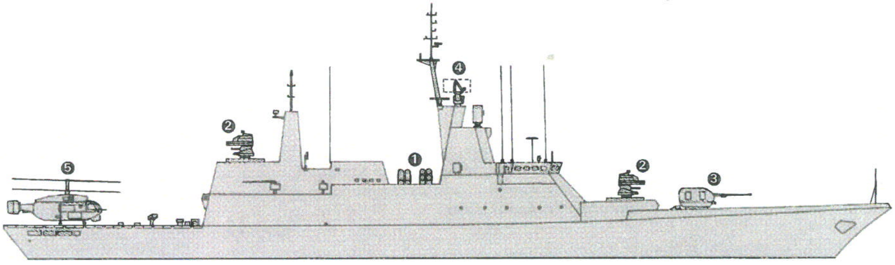
6/2002 / 0528325

0 + 2 (2) STEREGUSHCHIY CLASS (PROJECT 20380) (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
STEREGUSHCHIY	–	Severnaya, St Petersburg	21 Dec 2001	2005	2007
SOOBRAZITELNY	–	Severnaya, St Petersburg	20 May 2003	2007	2008

Displacement, tons: 1,900 full load
Dimensions, feet (metres): 366.2 × 45.9 × 12.1 *(111.6 × 14.0 × 3.7)*
Main machinery: CODOG: 2 gas turbines; 20,000 hp *(14.9 MW)*; 2 diesels; 7,300 hp *(5.44 MW)*; 2 shafts
Speed, knots: 26. **Range, miles:** 4,000 at 14 kt

Missiles: SSM: 8 Zvezda SS-N-25 (KH 35 Uran) (2 quad) ❶; active radar homing to 130 km *(70.2 n miles)* at 0.9 Mach; warhead 145 kg; sea skimmer. VLS Silo.
SAM: 2 CADS-N-1 (Kashtan) ❷; each with twin 30 mm Gatling; combined with 8 SA-N-11 (Grisson) and Hot Flash/Hot Spot fire-control radar/optronic director. Laser beam guidance for missiles to 8 km *(4.4 n miles)*; warhead 9 kg; 9,000 rds/min combined to 1.5 km for guns.
A/S: Medvedka (SS-N-29); inertial flight to 25 km *(13.5 n miles)*; payload Type 40 torpedo.
Guns: 1—100 mm A-190 ❸. 2—14.5 mm MGs.
Countermeasures: Decoys/ESM/ECM.
Radars: Air/surface search: Top Plate; 3D ❹; E/F-band.
Fire control: Plank Shave (Granit Harpun B (for SSM)); I-band.
Fire control: Kite Screech; H/I/K-band (for 100 mm gun)
Sonars: Bow fitted.



STEREGUSHCHIY *(Scale 1 : 900), Ian Sturton /* 0569928

Helicopters: Platform for 1 Ka-27 Helix ❺.

Programmes: Multipurpose frigate designed to replace the 'Grisha' class. Variants to be offered for export under Projects 20382 and 20383. First of class to commission in 2006 with follow on ships at annual intervals. The first batch consists of four ships, a reduction from the ten initially envisaged.

Structure: Not all details are known but measures to reduce radar cross section are reported.

UPDATED

22 GRISHA (ALBATROS) (PROJECT 1124/1124M/1124K/1124EM) CLASS (FFLM)

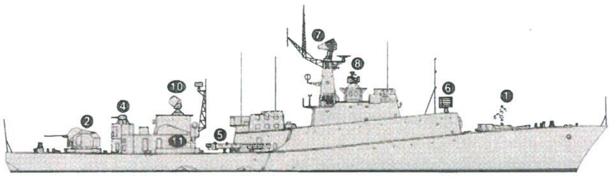
NORTH
MPK 14 190
MPK 59 196
MPK 113 171
MPK 130 138
MPK 139 129
MPK 194 199
MPK 196 –
MPK 197 106
MPK 203 187

PAC
MPK 17 362
MPK 28 396
MPK 64 323
MPK 82 375
MPK 107 332
MPK 191 (III) 369
MPK 222 390

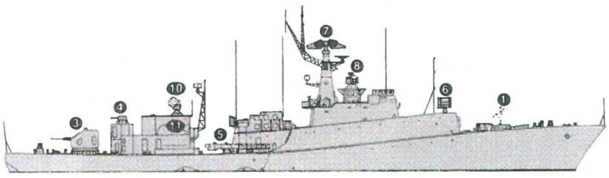
BLACK
MPK 49 (III) 059
MPK 118 071
MPK 134 064
MPK 199 055
MPK 207 053
MPK 217 054

Displacement, tons: 950 standard; 1,200 full load
Dimensions, feet (metres): 233.6 × 32.2 × 12.1 *(71.2 × 9.8 × 3.7)*
Main machinery: CODAG; 1 gas-turbine; 15,000 hp(m) *(11 MW)*; 2 diesels; 16,000 hp(m) *(11.8 MW)*; 3 shafts
Speed, knots: 30. **Range, miles:** 2,500 at 14 kt; 1,750 at 20 kt diesels; 950 at 27 kt
Complement: 70 (5 officers) (Grisha III); 60 (Grisha I)

Missiles: SAM: SA-N-4 Gecko twin launcher ❶; semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; warhead 50 kg; altitude 9.1-3,048 m *(30-10,000 ft)*; 20 missiles (see *Structure* for SA-N-9).
Guns: 2—57 mm/80 (twin) ❷; 120 rds/min to 6 km *(3.3 n miles)*; weight of shell 2.8 kg.
1—3 in *(76 mm)*/60 (Grisha V) ❸; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
1—30 mm/65 (Grisha III and V classes) ❹; 6 barrels; 3,000 rds/min combined to 2 km.
Torpedoes: 4—21 in *(533 mm)* (2 twin) tubes ❺. Combination of 53 cm torpedoes (see table at front of section).
A/S mortars: 2 RBU 6000 12-tubed trainable ❻; range 6,000 m; warhead 31 kg. (Only 1 in Grisha Vs.)
Depth charges: 2 racks (12).
Mines: Capacity for 18 in lieu of depth charges.
Countermeasures: Decoys: 4 PK 10 or 2 PK 16 chaff launchers.
ESM: 2 Watch Dog.



GRISHA III *(Scale 1 : 900), Ian Sturton*



GRISHA V *(Scale 1 : 900), Ian Sturton*

Radars: Air/surface search: Strut Curve (Strut Pair in early Grisha Vs) ❼; F-band; range 110 km *(60 n miles)* for 2 m^2 target.
Half Plate Bravo (in later Grisha Vs); E/F-band.
Navigation: Don 2; I-band.
Fire control: Pop Group ❽; F/H/I-band (for SA-N-4). Bass Tilt (Grisha III and V) ❿; H/I-band (for 57/76 mm and 30 mm).
IFF: High Pole A or B. Square Head. Salt Pot.

Sonars: Bull Nose; hull-mounted; active search and attack; high/medium frequency.
Elk Tail; VDS ⓫; active search; high frequency. Similar to Hormone helicopter dipping sonar.

Programmes: Grisha III 1973-85 (two remaining); Grisha V 1982-1996 onwards (20 remaining). All were built at Kiev, Kharbarovsk and Zelenodolsk. Type name is *maly protivolodochny korabl* meaning small anti-submarine ship.
Structure: 'Grisha III' class has Muff Cob radar removed, Bass Tilt and 30 mm ADG (fitted aft), and Rad-haz screen removed from abaft funnel as a result of removal of Muff Cob. Grisha V is similar to Grisha III with the after twin 57 mm mounting replaced by a single Tarantul type 76 mm gun.
Operational: Nine Grisha Vs are stationed in the Northern Fleet, one Grisha III and six Vs in the Pacific and one III and five Vs in the Black Sea. The modified Grisha III, known as Grisha IV, has been decommissioned.
Sales: Two Grisha III to Lithuania in November 1992. One Grisha V in 1994 and four Grisha II in 1996 to Ukraine.

UPDATED

GRISHA III MPK 49
7/2000, Hartmut Ehlers / 0105546

GRISHA V MPK 64 *8/2002, Ships of the World /* 0528324

SHIPBORNE AIRCRAFT

Notes: (1) A smaller variant of the Kamov Ka-60 is reported to have been offered to the Russian Navy. The Ka-40 anti-submarine helicopter has been under development since 1990. Loosely based on the 'Helix', it is likely to have a similar main rotor and tail-fin configuration.
(2) Haze B helicopters have all been placed in reserve as have all Ka-25 Hormones. The latter remain active and probably have a training role.

Numbers/Type: 17/2 Sukhoi Su-33 Flanker D/Su-33 Kub.
Operational speed: 1,345 kt *(2,500 km/h).*
Service ceiling: 59,000 ft *(18,000 m).*
Range: 2,160 + n miles *(4,000 km).*
Role/Weapon systems: Fleet air defence fighter. 20 production aircraft delivered of which 3 have been lost. 10 are believed to be operational. All based in the Northern Fleet. Most training is done from a simulated flight deck ashore. Sensors: Track-while-scan pulse Doppler radar, IR scanner. Weapons: One 30 mm cannon, 10 AAMs (AA-12, AA-11, AA-8).
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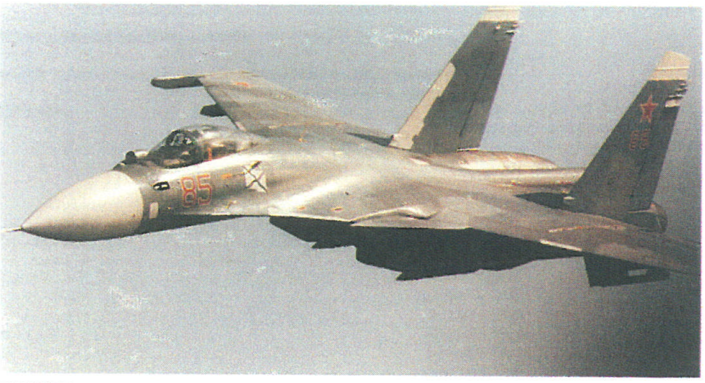

FLANKER *2/1996*

Numbers/Type: 4 Sukhoi Su-25UT Frogfoot UTG.
Operational speed: 526 kt *(975 km/h).*
Service ceiling: 22,965 ft *(7,000 m).*
Range: 675 n miles *(1,250 km).*
Role/Weapon systems: The UTG version is the two seater ground attack aircraft used for deck training in the carrier *Kuznetsov*. About 40 more of these aircraft are Air Force. Sensors: Laser rangefinder, ESM, ECM. Weapons: One 30 mm cannon, AAMs (AA-8), rockets, bombs.
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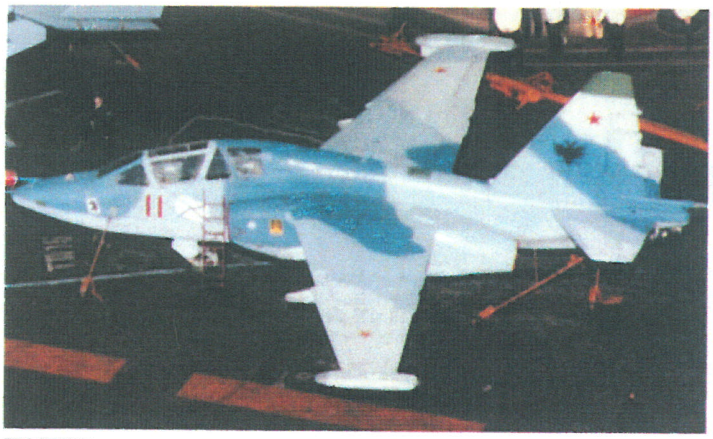

FROGFOOT *2/1996*

Numbers/Type: 2 Kamov Ka-31 Helix RLD.
Operational speed: 119 kt *(220 km/h).*
Service ceiling: 11,480 ft *(3,500 m).*
Range: 162 n miles *(300 km).*
Role/Weapon systems: AEW conversions with a solid-state radar under the fuselage. Four sold to India. Sensors: Oko E-801 Surveillance radar, datalinks. Weapons: Unarmed.
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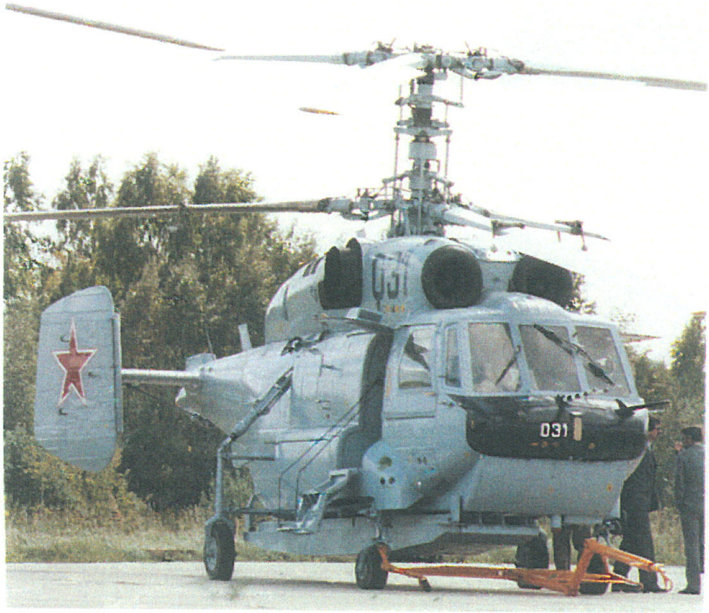

HELIX RLD *9/1995*

Numbers/Type: 67/12/4 Kamov Ka-27PL Helix A/Ka-29 Helix B/Ka-32 Helix D.
Operational speed: 135 kt *(250 km/h).*
Service ceiling: 19,685 ft *(6,000 m).*
Range: 432 n miles *(800 km).*
Role/Weapon systems: ASW helicopter; three main versions—'A' for ASW, 'B' for assault and D for SAR; deployed to surface ships and some shore stations. Sensors: Osminog Splash Drop search radar, VGS-3 dipping sonar, sonobuoys, MAD, ESM. Weapons: ASW; three APR-2 torpedoes, nuclear or conventional S3V depth bombs or mines. Assault type: Two UV-57 rocket pods (2 × 32).
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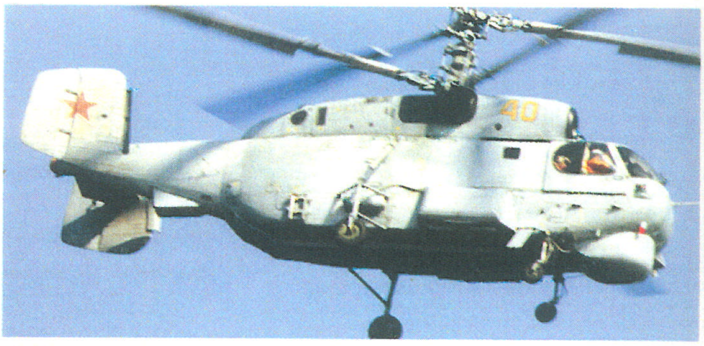
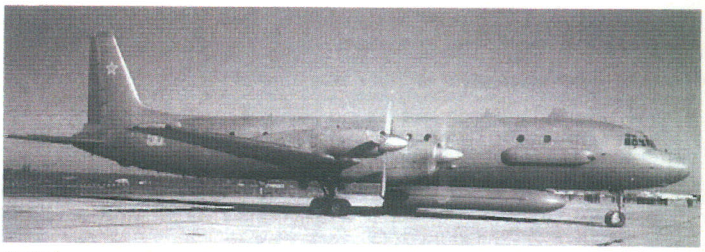


HELIX *6/2000* / 0126386

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: (1) The MiG-29 Fulcrum D has been abandoned by the Navy and the Ka-34 Hokum is not in production. Yak-41 Freestyle is not being developed but the prototype is for sale. Fitter C/D, Badgers and Bear D aircraft were out of service by 1995, Blinders and Bear G by 1997, and Mail and Haze A/C by 1999 (except for three still active in the Black Sea Fleet).
(2) Tu-204P has been proposed as an ASW/reconnaissance aircraft to replace the 'May'. It would be a development of the commercial transport aircraft.

Numbers/Type: 1 Ilyushin Il-20 Coot A.
Operational speed: 364 kt *(675 km/h).*
Service ceiling: 32,800 ft *(10,000 m).*
Range: 3,508 n miles *(6,500 km).*
Role/Weapon systems: Long-range Elint and MR for naval forces' intelligence gathering. Sensors: SLAR, weather radar, cameras, Elint equipment. Weapons: Unarmed.
UPDATED



COOT A *6/1995*, Sergey Sergeyev* / 0574163

Numbers/Type: 26 Ilyushin Il-38 May.
Operational speed: 347 kt *(645 km/h).*
Service ceiling: 32,800 ft *(10,000 m).*
Range: 3,887 n miles *(7,200 km).*
Role/Weapon systems: Long-range MR and ASW. 12 in the North, 14 in the Pacific. Test flights of an upgraded version started in 2002 and are to continue in 2003. Sensors: Wet Eye search/weather radar, MAD, sonobuoys. Weapons: ASW; internal storage for 6 tons weapons.
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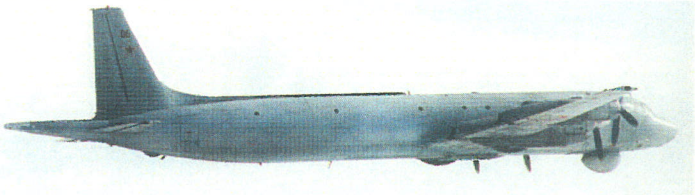
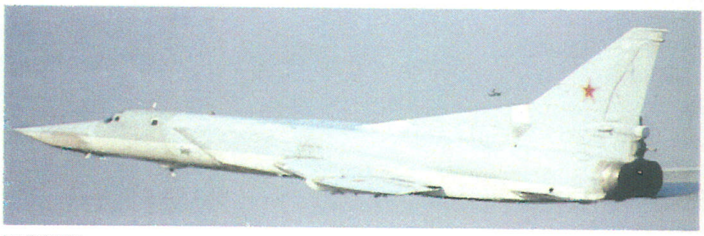


MAY *6/1999* / 0081667

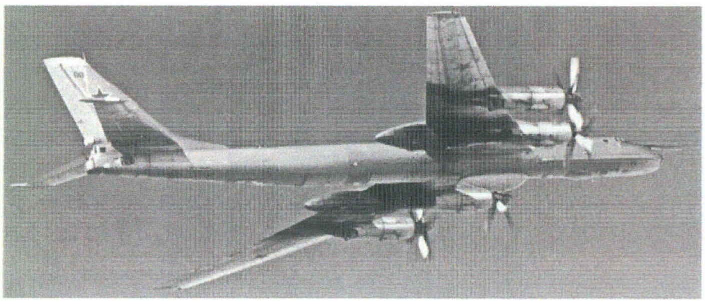
Numbers/Type: 5 Antonov An-12 Cub ('Cub B/C/D') ('Cub C/D' ECM/ASW).
Operational speed: 419 kt *(777 km/h).*
Service ceiling: 33,500 ft *(10,200 m).*
Range: 3,075 n miles *(5,700 km).*
Role/Weapon systems: Used either for intelligence gathering (B) or electronic warfare (C, D); is versatile with long range. Sensors: Search/weather radar, three EW blisters (B), tail-mounted EW/Elint equipment in addition (C/D). Weapons: Self-defence; two 23 mm cannon (B and D only).
UPDATED

Numbers/Type: 45 Tupolev Tu-22 M Backfire C.
Operational speed: 2.0 Mach.
Service ceiling: 60,000 ft *(18,300 m).*
Range: 2,500 n miles *(4,630 km).*
Role/Weapon systems: Medium-range nuclear/conventional strike and reconnaissance. About 20 are operational. Sensors: Down Beat search/Fan Tail attack radars, EW. Weapons: ASV; 12 tons of 'iron' bombs or standoff missiles AS-4 Kitchen (Kh 22N(A)) and AS-6 Kickback (Kh 15P). Self-defence; two 23 mm cannon.
UPDATED



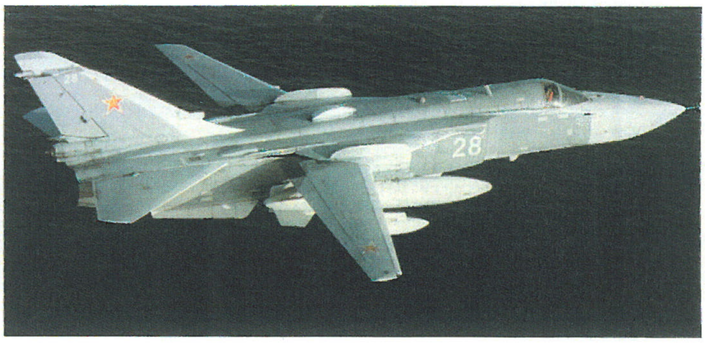
BACKFIRE *6/2003*, Paul Jackson* / 0547316

Numbers/Type: 20/12 Tupolev Tu-142 Bear F/Bear J.
Operational speed: 500 kt *(925 km/h).*
Service ceiling: 60,000 ft *(18,300 m).*
Range: 6,775 n miles *(12,550 km).*
Role/Weapon systems: Multimission long-range aircraft (ASW and communications variants). 36 in the North, remainder Pacific. Sensors: Wet Eye search radar, ESM; search radar, sonobuoys, EW, MAD (F), ELINT systems (J). The Bear J is reported to be equipped with VLF communications for SSBN connectivity. Weapons: ASW; various torpedoes, depth bombs and/or mines (F). Self-defence; some have two 23 mm or more cannon. ***UPDATED***



BEAR 'J' *6/1994*, G Jacobs* / 0564718

Numbers/Type: 40 Sukhoi Su-24 Fencer D/E.
Operational speed: 1.15 Mach.
Service ceiling: 57,400 ft *(17,500 m).*
Range: 950 n miles *(1,755 km).*
Role/Weapon systems: Fitted for maritime reconnaissance (19) and strike (27). Sensors: Radar and EW. Weapons: 30 mm Gatling gun; various ASM missiles and bombs; some have 23 mm cannon. ***UPDATED***



FENCER E *6/1999*, Jane's* / 0048910

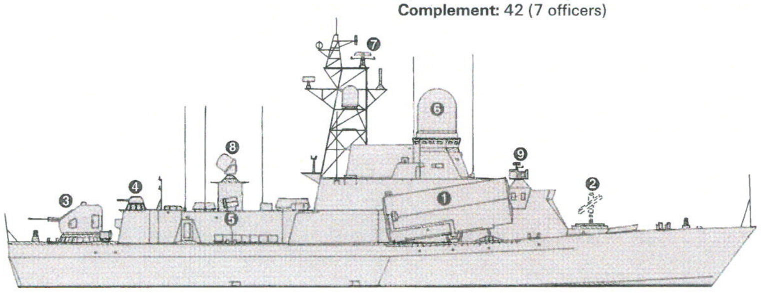
CORVETTES

15 NANUCHKA III (VETER) (PROJECT 1234.1 (FSGM)) and 1 NANUCHKA IV (NAKAT) (PROJECT 1234.7) CLASSES (FSG)

North	Baltic	Pac	Black
URAGAN 505	**LIVEN** 551	**MOROZ** 409	**SHTYL** 620
RASSVET 520	**GEYZER** 555	**RAZLIV** 450	**MIRAZH** 617
TUSHA 533	**ZYB** 560	**SMERCH** 423	
AYSBERG 535	**PASSAT** 570		
NAKAT (IV) 526	**METEOR** 590		

Displacement, tons: 660 full load
Dimensions, feet (metres): 194.5 × 38.7 × 8.5 *(59.3 × 11.8 × 2.6)*

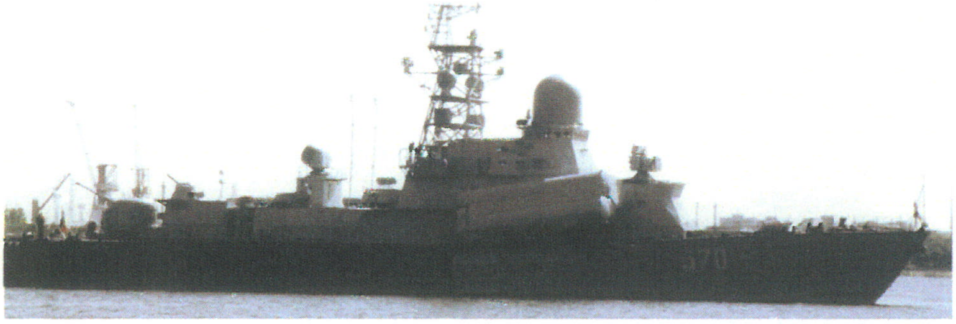
Main machinery: 6 M 504 diesels; 26,112 hp(m) *(19.2 MW)*; 3 shafts
Speed, knots: 33. **Range, miles:** 2,500 at 12 kt; 900 at 31 kt
Complement: 42 (7 officers)



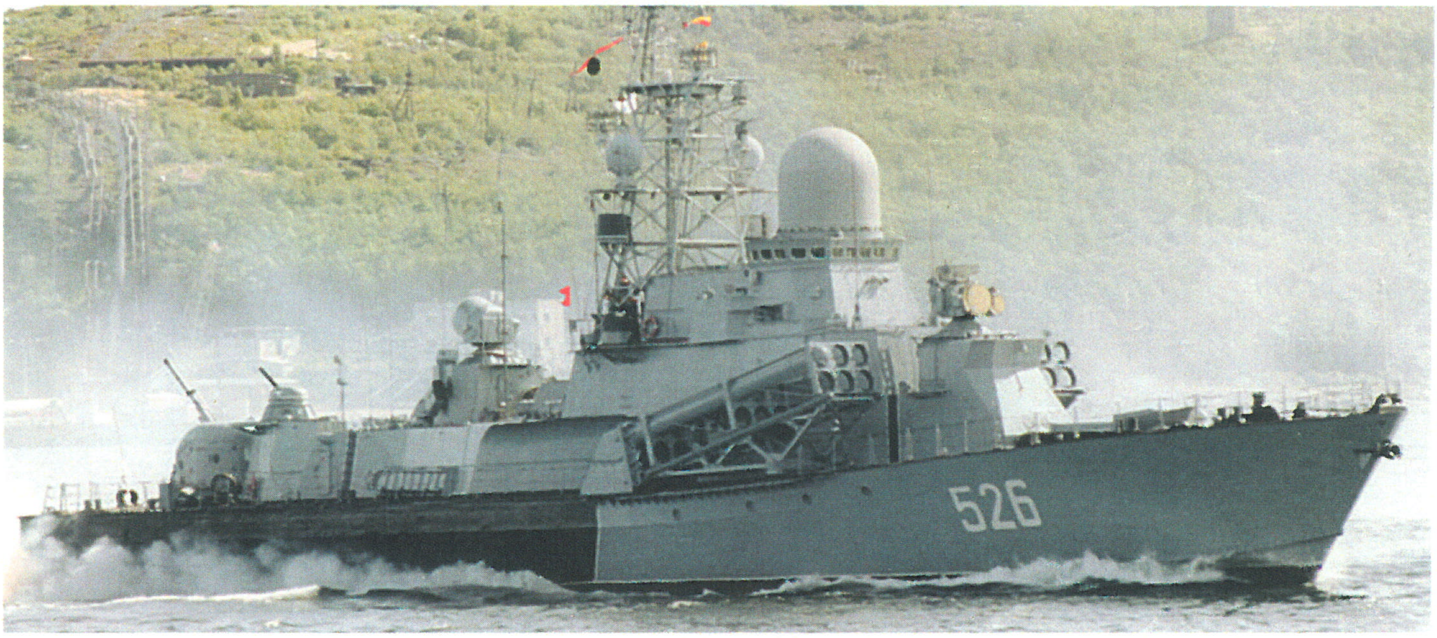
NANUCHKA III *(Scale 1 : 600), Ian Sturton* / 0105552

Missiles: SSM: 6 Chelomey SS-N-9 Siren (Malakhit) (2 triple) launchers ❶; command guidance and IR and active radar homing to 110 km *(60 n miles)* at 0.9 Mach; warhead nuclear 250 kT or HE 500 kg. Nanuchka IV has 2 sextuple launchers for trials of SS-NX-26; radar homing to 300 km *(161.9 n miles)* at Mach 2-3.5.
SAM: SA-N-4 Gecko twin launcher ❷; semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; warhead 50 kg; altitude 9.1-3,048 m *(30-10,000 ft)*; 20 missiles. Some anti-surface capability.
Guns: 1—3 in *(76 mm)*/60 ❸; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
1—30 mm/65 ❹; 6 barrels; 3,000 rds/min combined to 2 km.
Countermeasures: Decoys: 4 PK 10 chaff launchers ❺.
ESM: Foot Ball and Half Hat A and B. 4 Half Cup laser warners.
Weapons control: 2 Bell Nest or Light Bulb (datalinks). Band Stand ❻ datalink for SS-N-9.
Radars: Air/surface search: Peel Pair ❼; I-band or Plank Shave; E/F-band.
Fire control: Bass Tilt ❽; H/I-band. Pop Group ❾; F/H/I-band (for SA-N-4).
Navigation: Nayada; I-band.
IFF: High Pole. Square Head. Spar Stump. Salt Pot A and B.

Programmes: Built from 1969 onwards at Petrovsky, Leningrad and in the Pacific. Nanuchka III, first seen in 1978. Nanuchka IV completed in 1987 as a trials ship. Type name is *maly raketny korabl* meaning small missile ship.
Structure: The Nanuchka IV is similar in detail to Nanuchka III except that she is the trials vehicle for SS-NX-26.
Operational: Intended for deployment in coastal waters although formerly deployed in the Mediterranean (in groups of two or three), North Sea and Pacific. ***UPDATED***



PASSAT
6/2003, E & M Laursen* / 0570921



NAKAT (NANUCHKA IV) *8/2002** / 0528321

2 DERGACH (SIVUCH) (PROJECT 1239) CLASS (PGGJM}

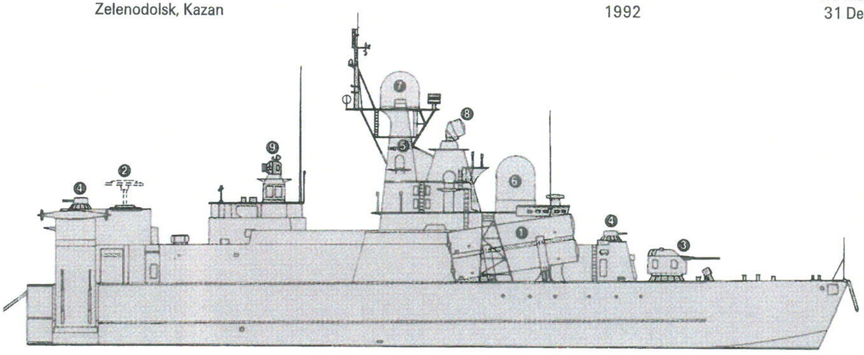
Name	*No*	*Builders*	*Launched*	*Commissioned*
BORA (MRK 27)	615	Zelenodolsk, Kazan	1987	20 May 1997
SAMUM (MRK 17)	616 (ex-575, ex-890)	Zelenodolsk, Kazan	1992	31 Dec 1995

Displacement, tons: 1,050 full load
Dimensions, feet (metres): 211.6 × 55.8 × 12.5 *(64.5 × 17 × 3.8)*
Main machinery: CODOG; 2 gas turbines; 55,216 hp(m) *(40.6 MW)*; 2 diesels; 10,064 hp(m) *(7.4 MW)*; 2 hydroprops; 2 auxiliary diesels; 2 props on retractable pods
Speed, knots: 53 foil; 12 hullborne
Range, miles: 600 at 50 kt; 2,500 at 12 kt
Complement: 67 (8 officers)

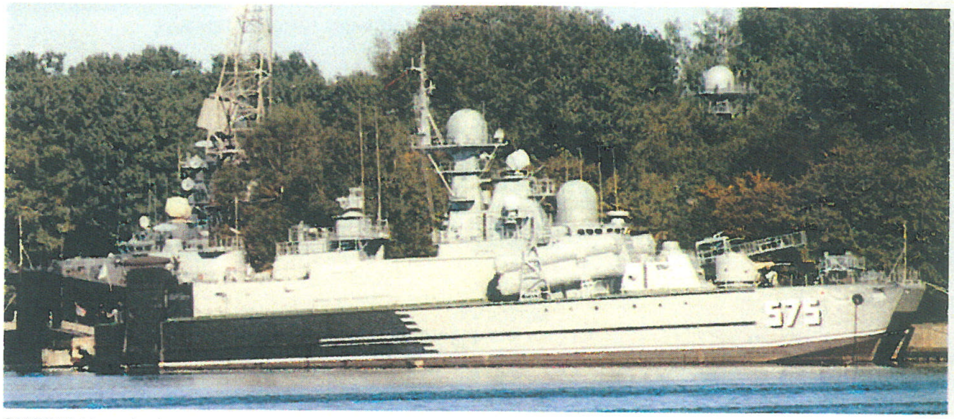
Missiles: SSM: 8 SS-N-22 (2 quad) Sunburn (3M-82 Moskit) launchers ❶; active radar homing to 160 km *(87 n miles)* at 2.5 Mach; warhead nuclear or 200 kT or HE 300 kg; sea-skimmer.
SAM: SA-N-4 Gecko twin launcher ❷; semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; warhead 50 kg; 20 missiles.
Guns: 1—3 in *(76 mm)*/60 AK 176 ❸; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
2—30 mm/65 AK 630 ❹; 6 barrels per mounting; 3,000 rds/min combined to 2 km.
Countermeasures: Decoys: 2 PK 16 and 2 PK 10 chaff launchers.
ESM/ECM: 2 Foot Ball A. 2 Half Hats.
Weapons control: 2 Light Bulb datalink ❺. Band Stand ❻ datalink for SS-N-22; Bell Nest.
Radars: Air/surface search: Cross Dome ❼; E/F-band.
Fire control: Bass Tilt ❽; H/I-band (for guns).
Pop Group ❾; F/H/I-band (for SAM).
Navigation: SRN-207; I-band.
IFF: Square Head. Salt Pot.

Programmes: Almaz design approved 24 December 1980. Classified as a PGGA (Guided Missile Patrol Air Cushion Vessels). Both did trials from 1989 (Bora) and 1993 *(Samum)* before being accepted into service.
Structure: Twin-hulled surface effect design. The auxiliary diesels are for slow speed operations.
Operational: The design was unreliable but efforts were made in 1996/97 to restore both to an operational state. Both based at Sevastopol. SS-N-22 missiles were test-fired in April 2003. *Bora* has a camouflaged hull and is based at Sevastopol but operational status is doubtful.

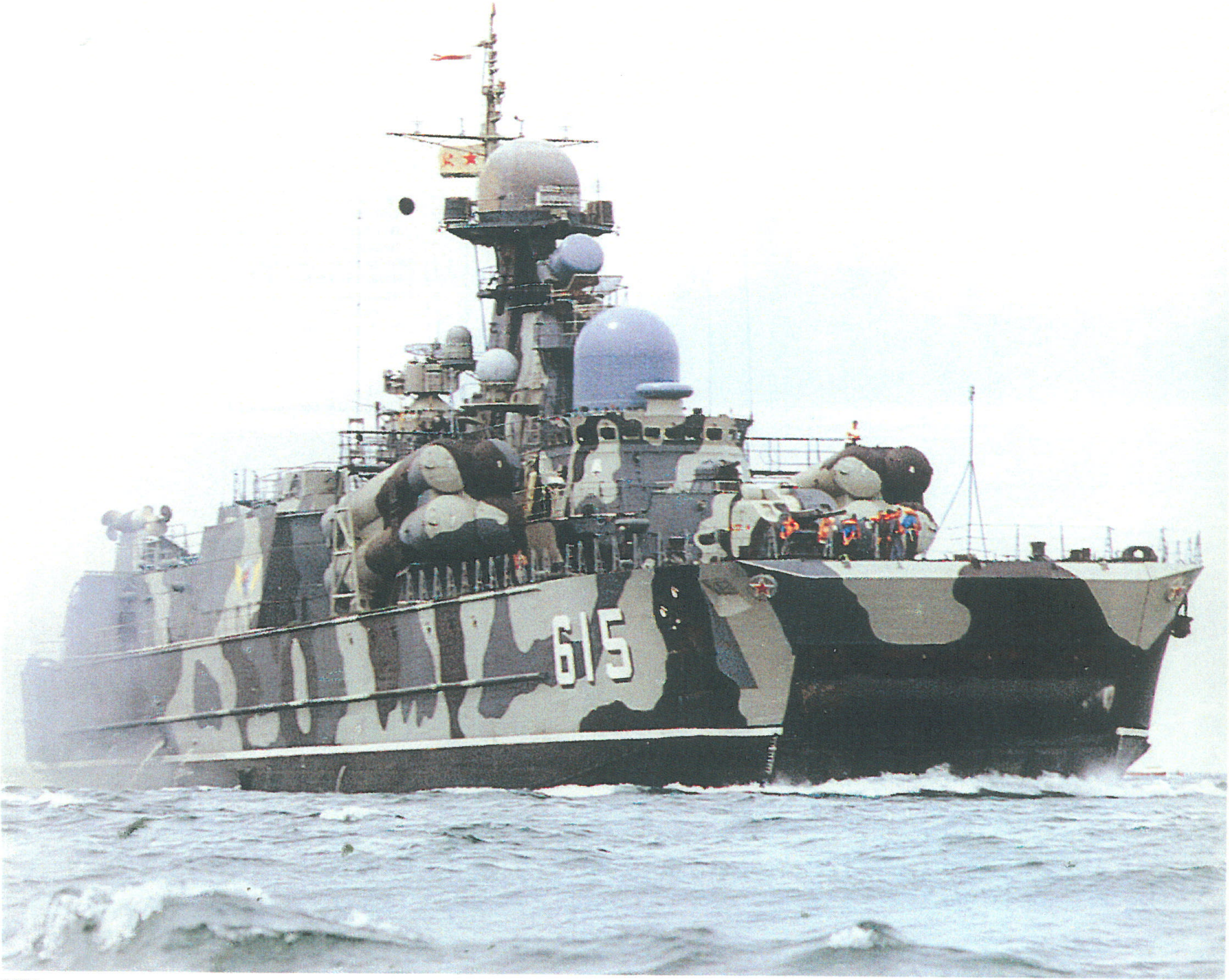
UPDATED



BORA *(Scale 1 : 600), Ian Sturton*



SAMUM (old number) *9/2000, J Ciślak* / 0105548



BORA *6/2000, B Lemachko* / 0106871

22 TARANTUL (MOLNYA) (PROJECT 1241.1/1241.1M/1241.1MP/1242.1) CLASS (FSGM)

TARANTUL II		**R 293**	874	**R 109**	952
R 125	833	**R 20**	921	**R 334**	954
TARANTUL III		**R 14**	924	**R 60**	955
R 42	819	**R 104**	927	**R 298**	971
R 291	825	**R 18**	937	**R 19**	978
R 129	852	**R 11**	940	—	991
R 187	855	**R 24**	946	—	994
R 2	870	**R 297**	951	**R 79**	995

Displacement, tons: 385 standard; 455 full load
Dimensions, feet (metres): 184.1 × 37.7 × 8.2 *(56.1 × 11.5 × 2.5)*
Main machinery: COGAG; 2 Nikolayev Type DR 77 gas turbines; 16,016 hp(m) *(11.77 MW)* sustained; 2 Nikolayev Type DR 76 gas turbines with reversible gearboxes; 4,993 hp(m) *(3.67 MW)* sustained; 2 shafts or CODOG with 2 CM 504 diesels; 8,000 hp(m) *(5.88 MW)*, replacing second pair of gas-turbines in Tarantul IIIs
Speed, knots: 36. **Range, miles:** 400 at 36 kt; 1,650 at 14 kt
Complement: 34 (5 officers)

Missiles: SSM: 4 Raduga SS-N-2D Styx (2 twin) launchers (Tarantul II); active radar or IR homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg; sea-skimmer at end of run.
4 Raduga SS-N-22 Sunburn (3M-82 Moskit) (2 twin) launchers (Tarantul III); active radar homing to 160 km *(87 n miles)* at 2.5 Mach; warhead nuclear 200 kT or HE 300 kg; sea-skimmer. Modified version in Type 1242.1.
SAM: SA-N-5 Grail quad launcher; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg.
Guns: 1—3 in *(76 mm)*/60; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
2—30 mm/65; 6 barrels per mounting; 3,000 rds/min to 2 km.
Countermeasures: Decoys: 2 PK 16 or 4 PK 10 (Tarantul III) chaff launchers.
ESM: 2 Foot Ball, 2 Half Hat (in some).
Weapons control: Hood Wink optronic director. Light Bulb datalink. Band Stand; datalink for SSM; Bell Nest.
Radars: Air/surface search: Plank Shave or Positiv E (Tarantul 874); I-band.
Navigation: Kivach III; I-band.
Fire control: Bass Tilt; H/I-band.
IFF: Square Head. High Pole B.
Sonars: Foal Tail; VDS; active search; high frequency.

Programmes: Tarantul II were built at Kolpino, Petrovsky, Leningrad and in the Pacific in 1980-86. Production of Taruntul IIIs then continued until 1995 although a single experimental Tarantul III with four SS-N-22 had been completed at Petrovsky in 1981. One more was launched in September 1997 at Rybinsk, and a Tarantul III at Kolpino completed in December 1999 for the Baltic Fleet. Type name is *raketny kater* meaning missile cutter.
Modernisation: Tarantul III 874 served as a trials platform for a modified version of SS-N-22 with a longer range; the missile is distinguished by end caps on the launcher doors. Tarantul II 962 (now decommissioned) served as a trials platform for the CADS-N-1 point defence system in the Black Sea.
Structure: Basically same hull as 'Pauk' class, without extension for sonar. The single Type 1242.1 has a Positiv E radar.
Operational: One Tarantul II (R 125) and six IIIs (R 129, R 42, R 291, R 187, R 2, R 293) are in the Baltic, one III (R 239) is in the Black Sea, one III in the Caspian, and 13 in the Pacific.
Sales: 'Tarantul I' class-one to Poland 28 December 1983, second in April 1984, third in March 1988 and fourth in January 1989. One to India in April 1987, second in January 1988, third in December 1988, fourth in November 1989 and fifth in January 1990. Two to Yemen in November 1990 and January 1991. One to Romania in December 1990, two more in February 1992. One Tarantul II to Bulgaria in March 1990. Two Tarantul Is to Vietnam in 1996 and two more in 1999.

UPDATED

R 18 *10/2002, Hachiro Nakai* / 0528322

R 2 *6/2003*, A Sheldon-Duplaix* / 0570920

MOD TARANTUL III *6/1999* / 0081670

0 + 1 (9) SCORPION (PROJECT 12300) CLASS (FSGM)

Displacement, tons: 470 standard
Dimensions, feet (metres): 186.4 × 35.4 × 17.1 *(56.8 × 10.8 × 5.2)*
Main machinery: CODAG: 1 M-70FR gas turbine; 8,775 hp *(6.54 MW)*; 2 MTU 16V4000 M 90 diesels; 16,320 hp *(12.2 MW)*; 2 shafts; 1 hydrojet
Speed, knots: 38. **Range, miles:** 1,500 at 12 kt
Complement: 37

Missiles: SSM: 8 NPOMash SS-N-26 (2 quad) 3M55 Oniks/Yakhont launchers ❶; inertial guidance and active/passive radar homing to 300 km *(160 n miles)* at 3.5 Mach; warhead 250 kg; sea skimmer (to be confirmed).
SAM/Guns: 1 CADS-N (Kortik/Kashtan) (3M87) ❷; twin 30 mm Gatling combined with 8 SA-N-11 (Grison) and Hot Flash/Hot Spot fire-control radar/optronic director. Laser beam guidance for missiles to 8 km *(4.4 n miles)*; warhead 9 kg; 9,000 rds/min to 1.5 km (for guns).
Guns: 1—3.9 in *(100 mm)* A 190 (L 59) ❸ 60 rds/min to 15 km *(8.2 n miles)*; weight of shell 16 kg.
Countermeasures: Decoys: 4 PK10 chaff launchers ❹. ESM.
Radars: Air/surface search: Positiv M1 ❺; I-band.
Fire control: Plank Shave (Garpun B) ❻; I/J-band.
Ratep 5P-10E Puma ❼; I-band (for 100 mm gun).

Programmes: Designed by ALMAZ, St Petersburg, as successor to the 'Tarantul' class. First vessel laid down 5 June 2001 at Vympel shipyard, Rybinsk, with delivery planned for 2005. A class of 10 vessels is envisaged for the Russian Navy and further sales abroad.
Structure: Designed with stealth features and equipped with stabilising automatic control system to reduce rolling.

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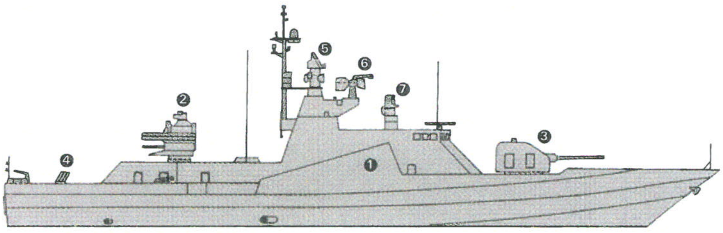


SCORPION *(Scale 1 : 600), Ian Sturton* / 0569930

PATROL FORCES

Notes: The keel of a Project 21630 gunboat of 500 tons was laid down at Almaz, St Petersburg, on 30 January 2004. It is expected to become operational in the Caspian Sea in late 2005.

2 MATKA (VEKHR) CLASS (PROJECT 206MP) (FAST ATTACK CRAFT—MISSILE HYDROFOIL) (PGGK)

STUPINETS R 27	701	**KOSAR R 44**	966

Displacement, tons: 225 standard; 260 full load
Dimensions, feet (metres): 129.9 × 24.9 (41 over foils) × 6.9 (13.1 over foils) *(39.6 × 7.6 (12.5) × 2.1 (4))*
Main machinery: 3 Type M 504 diesels; 10,800 hp(m) *(7.94 MW)* sustained; 3 shafts
Speed, knots: 40. **Range, miles:** 600 at 35 kt foilborne; 1,500 at 14 kt hullborne
Complement: 33

Missiles: SSM: 2 SS-N-2C/D Styx; active radar or IR homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg; sea-skimmer at end of run.
8 SS-N-25 (in *966*); radar homing to 130 km *(70.2 n miles)* at 0.9 Mach; warhead 145 kg; sea-skimmer.
Guns: 1—3 in *(76 mm)*/60; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
1—30 mm/65 AK 630; 6 barrels per mounting; 3,000 rds/min to 2 km.
Countermeasures: Decoys: 2 PK 16 chaff launchers.
ESM: Clay Brick; intercept.
Weapons control: Hood Wink optronic directors.
Radars: Air/surface search: Plank Shave; E-band.
Navigation: SRN-207; I-band.
Fire control: Bass Tilt; H/I-band.
IFF: High Pole B or Salt Pot B and Square Head.

Programmes: In early 1978 the first of class was seen. Built at Kolpino Yard, Leningrad. Production stopped in 1983 being superseded by 'Tarantul' class. Type name is *raketny kater* meaning missile cutter.
Structure: Similar hull to the deleted 'Osa' class with similar single hydrofoil system to 'Turya' class. The combination has produced a better sea-boat than the 'Osa' class. *R 44* in the Black Sea was the trials craft for the SS-N-25.
Operational: *R 44* is based in the Black Sea and R 27 is based in the Caspian. Five units transferred to Ukraine in 1996.

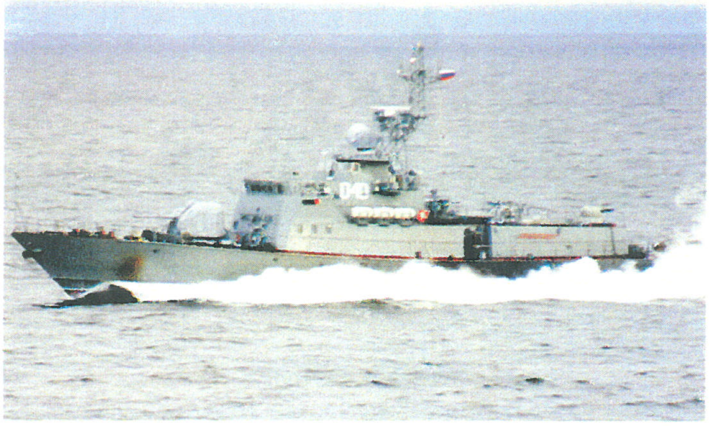
UPDATED

KOSAR R 44 *6/2003*, B Lemachko* / 0570912

3 SVETLYAK (PROJECT 1041Z) CLASS (PGM)

Displacement, tons: 375 full load
Dimensions, feet (metres): 159.1 × 30.2 × 11.5 *(48.5 × 9.2 × 3.5)*
Main machinery: 3 diesels; 14,400 hp(m) *(10.58 MW)* sustained; 3 shafts
Speed, knots: 31. **Range, miles:** 2,200 at 13 kt
Complement: 36 (4 officers)
Missiles: SAM: SA-N-5 Grail quad launcher; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; warhead 1.5 kg.
Guns: 1—3 in *(76 mm)*/60; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
1 or 2—30 mm/65 AK 630; 6 barrels; 3,000 rds/min combined to 2 km.
Torpedoes: 2—16 in *(406 mm)* tubes.
Depth charges: 2 racks; 12 charges.
Countermeasures: Decoys: 2 chaff launchers.
Weapons control: Hook Wink optronic director.
Radars: Air/surface search: Peel cone; E-band.
Fire control: Bass Tilt; H/I-band.
Navigation: Palm Frond B; I-band.
Sonars: Rat Tail; VDS; active search; high frequency.

Comment: Most of this class are in service with the Federal Border Guard but three were reported to have been allocated to the navy.
NEW ENTRY



SVETLYAK 040 *10/2002*, B Lemachko* / 0570904

1 MUKHA (SOKOL) (PROJECT 1145) CLASS (FAST ATTACK CRAFT—PATROL HYDROFOIL) (PGK)

MPK 220 VLADIMIRETS 060

Displacement, tons: 400 full load
Dimensions, feet (metres): 164 × 27.9 (33.5 over foils) × 13.1 (19.4 foils) *(50 × 8.5 (10.2.) × 4 (5.9))*
Main machinery: CODOG; 2 Type NK-12M gas turbines; 23,046 hp(m) *(16.95 MW)* sustained; 2 diesels; 2,400 hp(m) *(1.76 MW)*; 2 shafts
Speed, knots: 40; 12 hullborne
Complement: 45

Guns: 1—3 in *(76 mm)*/60; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
2—30 mm/65 AK 630; 6 barrels per mounting; 3,000 rds/min combined to 2 km.
Torpedoes: 8—16 in *(406 mm)* (2 quad) tubes. SAET-40; anti-submarine; active/passive homing to 10 km *(5.4 n miles)* at 30 kt; warhead 100 kg.
Countermeasures: Decoys: 2 PK 16 chaff launchers.
ESM: Radar warning.
Radars: Surface search: Peel Cone; E-band.
Navigation: SRN 206; I-band.
Fire control: Bass Tilt; H/I-band.
Sonars: Foal Tail; VDS; active search; high frequency.

Programmes: Built in 1986 at Feodosuja.
Structure: Features include a hydrofoil arrangement with a single fixed foil forward, large gas-turbine exhausts aft, and trainable torpedo mountings.
Operational: Based in the Black Sea and probably soon to be paid off. The ship of the class, which was used as a trials platform for the Medveka ASW guided weapon, is laid up in the Black Sea.
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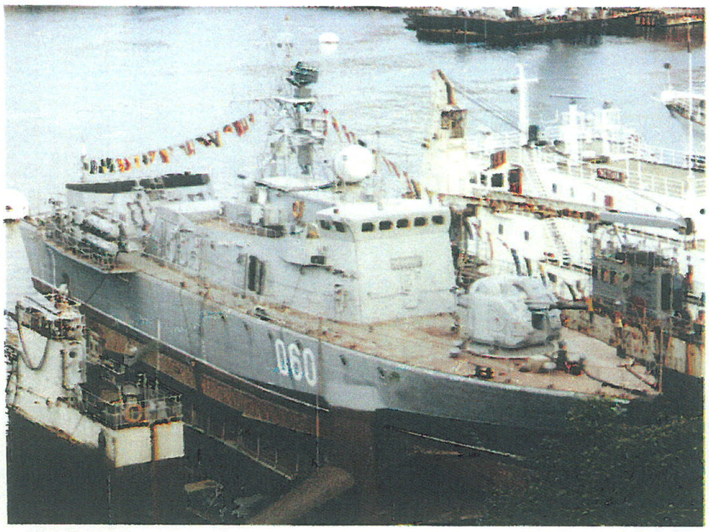

VLADIMIRETS *8/2000, Hartmut Ehlers* / 0105554

MINE WARFARE FORCES

Notes: (1) All remaining 'Yevgenya' (Korond) class MHCs were laid up by 2001, except for two in the Caspian Sea which may still be used as patrol craft.
(2) Some 40 to 50 craft of various dimensions, some with cable reels, some self-propelled and unmanned, some towed and unmanned are reported including the 8 m Kater and Volga unmanned mine clearance craft.

8 + 1 NATYA I (AKVAMAREN) (PROJECT 266M) CLASS (MINESWEEPERS—OCEAN) (MSOM)

PULEMETCHIK 834
KOVROVETS 913
MOTORIST 806
VALENTIN PIKUL 770
SVYAZIST 610
MT-265 718
KONTRADMIRAL VLASOV 855
MT-264 738
VITSEADMIRAL ZACHARIN

Displacement, tons: 804 full load
Dimensions, feet (metres): 200.1 × 33.5 × 9.8 *(61 × 10.2 × 3)*
Main machinery: 2 Type M 504 diesels; 5,000 hp(m) *(3.67 MW)* sustained; 2 shafts; cp props
Speed, knots: 16. **Range, miles:** 3,000 at 12 kt
Complement: 67 (8 officers)

Missiles: SAM: 2 SA-N-5/8 Grail quad launchers (in some); manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg; 18 missiles.
Guns: 4—30 mm/65 (2 twin) AK 230; 500 rds/min to 6.5 km *(3.5 n miles)*; weight of shell 0.54 kg or 2—30 mm/65 AK 306; 6 barrels per mounting; 3,000 rds/min combined to 2 km.
4—25 mm/80 (2 twin); 270 rds/min to 3 km *(1.6 n miles)*; weight of shell 0.34 kg.
A/S mortars: 2 RBU 1200 5-tubed fixed; range 1,200 m; warhead 34 kg.
Depth charges: 62.
Mines: 10.
Countermeasures: MCM: 1 or 2 GKT-2 contact sweeps; 1 AT-2 acoustic sweep; 1 TEM-3 magnetic sweep.
Radars: Surface search: Don 2 or Long Trough; I-band.
Fire control: Drum Tilt; H/I-band (not in all).
IFF: 2 Square Head. High Pole B.
Sonars: MG 79/89; hull-mounted; active minehunting; high frequency.

Programmes: First reported in 1970. Built at Kolpino and Khabarovsk. Type name is *morskoy tralshchik* meaning seagoing minesweeper. MT 264 and MT 265 were a new variant commissioned in 1989 in which the AK 306 mounts replaced the twin AK 230 mounts. Two further units, known as Natya III started construction in 1994. The first, *Valentin Pikul*, left St Petersburg for the Black Sea in July 2002 while the second, *Vitseadmiral Zacharin*, was launched at the Kolpino Yard in June 2002.
Structure: Some have hydraulic gantries aft. Have aluminium/steel alloy hulls. Some have Gatling 30 mm guns and a different radar configuration without Drum Tilt.
Operational: Usually operate in home waters but have deployed to the Mediterranean, Indian Ocean and West Africa. Sweep speed is 14 kt. Of the remaining operational units, three are based in the North, three in the Pacific, one in the Baltic and one in the Black Sea.
Sales: India (two in 1978, two in 1979, two in 1980, one in August 1986, two in 1987, three in 1988). Libya (two in 1981, two in February 1983, one in August 1983, one in January 1984, one in January 1985, one in October 1986). Syria (one in 1985). Yemen (one in 1991). Ethiopia (one in 1991). Some have been deleted.
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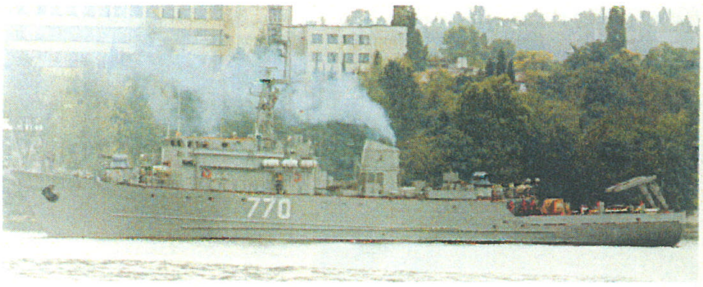

VALENTIN PIKUL *6/2003*, B Lemachko* / 0570913

9 LIDA (SAPFIR) (PROJECT 10750) CLASS (MINEHUNTERS—COASTAL) (MHC)

RT 249 206
RT 273 210
RT 233 219
RT 252 239
RT 231 302
RT 57 316
RT 341 331
RT 248 348
RT 234 372

Displacement, tons: 135 full load
Dimensions, feet (metres): 103.3 × 21.3 × 5.2 *(31.5 × 6.5 × 1.6)*
Main machinery: 3 D12MM diesels; 900 hp(m) *(690 kW)*; 3 shafts
Speed, knots: 12. **Range, miles:** 650 at 10 kt
Complement: 14 (1 officer)
Guns: 1—30 mm/65 AK 630; 6 barrels; 3,000 rds/min to 2 km.
Countermeasures: MCM: AT-6 acoustic, SEMT-1 magnetic and GKT-3M wire sweeps.
Radars: Surface search: Pechora; MR241; I-band.
Sonars: Kabarga I; minehunting; high frequency.

Comment: Type name *Reydnyy Tralshchik* meaning roadstead minesweeper. A follow-on to the 'Yevgenya' class started construction in 1989 at Kolpino Yard, St Petersburg. Similar in appearance to Yevgenya. Building rate was about three a year to 1992 and then slowed to one a year until 1995. Some are painted a blue/grey colour. All are in the Baltic except *RT 233* which is in the Caspian.
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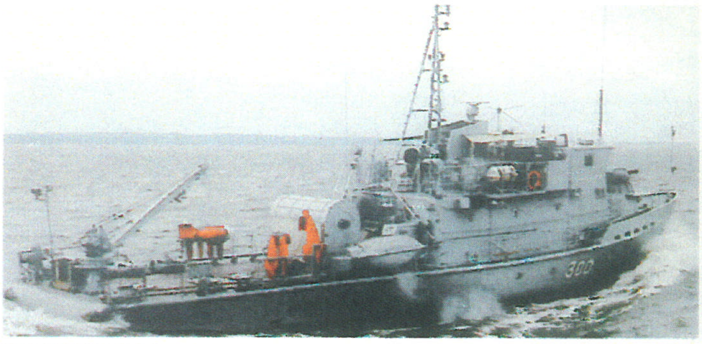

LIDA (SAPFIR) CLASS *6/1999, S Breyer* / 0528317

2 GORYA (TYPE 12660) CLASS (MINEHUNTERS—OCEAN) (MHOM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
A ZHELEZNYAKOV	901	Kolpino Yard, Leningrad	28 Feb 1985	17 July 1986	30 Dec 1988
V GUMANENKO	762	Kolpino Yard, Leningrad	15 Sep 1985	4 Mar 1991	9 Jan 1994

Displacement, tons: 1,130 full load
Dimensions, feet (metres): 216.5 × 36.1 × 10.8 *(66.0 × 11.0 × 3.3)*
Main machinery: 2 M 503 diesels; 5,000 hp(m) *(3.7 MW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 3,000 at 12 kt
Complement: 65 (7 officers)

Missiles: 2 SA-N-5 Grail quad launchers; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach.
Guns: 1—3 in *(76 mm)*/60 AK 176; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg. 1—30 mm/65 AK 630; 6 barrels; 3,000 rds/min to 2 km.
Countermeasures: Decoys: 2 PK 16 chaff launchers.
ESM: Cross Loop; Long Fold.
Radars: Surface search: Palm Frond; I-band.
Navigation: Nayada; I-band.
Fire control: Bass Tilt; H/I-band.
IFF: Salt Pot C. 2 Square Head.
Sonars: Hull-mounted; active search; high frequency.

Programmes: A third of class was started but has been scrapped.
Structure: Appears to carry mechanical, magnetic and acoustic sweep gear and may have accurate positional fixing equipment. A remote-controlled submersible is housed behind the sliding doors in the superstructure below the AK 630 mounting. Two 406 mm torpedo tubes are reported as used for mine countermeasures.
Operational: 901 is based in the Black Sea. 762 transferred from the Baltic to the Northern Fleet in 2000.

UPDATED

21 SONYA (YAKHONT) (PROJECT 12650/1265M) CLASS (MINESWEEPERS—HUNTERS/COASTAL) (MHSC/MHSCM)

North		Pacific		Baltic		Caspian	
—	402	**BT 245**	533	**BT 212**	501	**BT 88**	107
BT 111	411	**BT 96**	554	—	505		
BT 22	418	**BT 132**	580	**BT 230**	510		
BT 31	425	**BT 114**	592	**BT 213**	522		
BT 21	433	**BT 215**	593	**BT 115**	561		
—	436			**BT 44**	563		
—	454			**BT 94**	568		
				BT 262	577		

Displacement, tons: 450 full load
Dimensions, feet (metres): 157.4 × 28.9 × 6.6 *(48 × 8.8 × 2)*
Main machinery: 2 Kolomna Type 9-D-8 diesels; 2,000 hp(m) *(1.47 MW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 3,000 at 10 kt
Complement: 43 (5 officers)
Missiles: SAM: 2 quad SA-N-5 launchers (in some).
Guns: 2—30 mm/65 AK 630 or 2—30 mm/65 (twin) and 2—25 mm/80 (twin).
Mines: 8.
Radars: Surface search: Don 2 or Kivach or Nayada; I-band.
IFF: 2 Square Head. High Pole B.
Sonars: MG 69/79; hull-mounted; active minehunting; high frequency.

Comment: Wooden hull with GRP sheath. Built at about two a year at Petrozavodsk and at Ulis, Vladivostok (Pacific). First reported 1973 and the last one commissioned in January 1995. Type name is *bazovy tralshchik* meaning base minesweeper. Some have two twin 30 mm Gatling guns, others one 30 mm/65 (twin) plus one 25 mm (twin). In addition there are a further 50 in reserve.

Transfers: Bulgaria, four in 1981-85. Cuba, four in 1980-85. Syria, one in 1986. Vietnam, one in February 1987, one in February 1988, one in July 1989 and one in February 1990. Ethiopia, one in February 1991. Ukraine, two in 1996.

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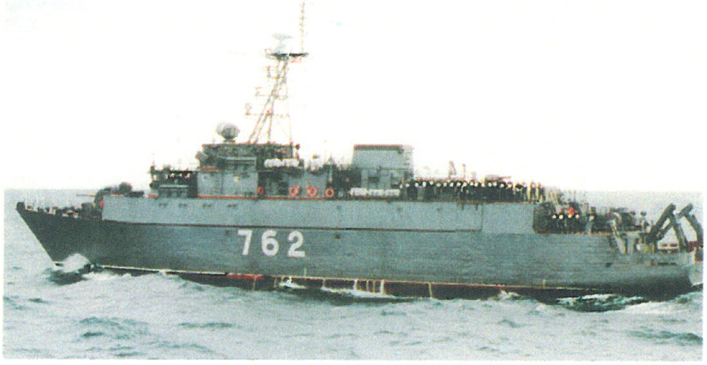
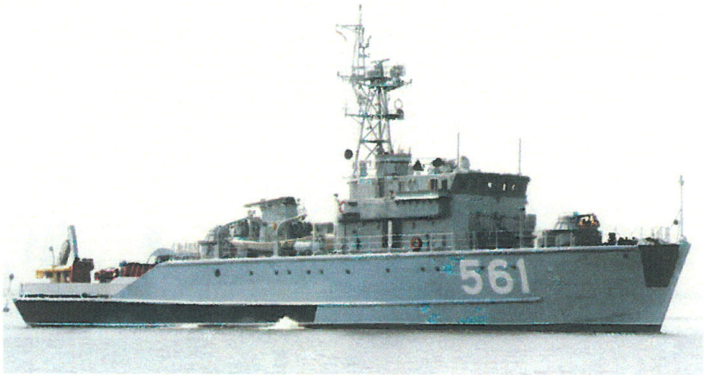


V GUMANENKO *8/2002* / 0528319



BT 115 *6/2003*, Guy Toremans* / 0570933

AMPHIBIOUS FORCES

5 ALLIGATOR (TAPIR) (PROJECT 1171) CLASS (LSTM)

BDK-65 (ex-*Voronezhsky Konsomolets*) 150
MINSK (ex-*Donetsky Shakhter*) 119
NIKOLAY FILCHENKOV 152
NIKOLAY VILKOV 081 (IV)
NIKOLAY OBYEKOV 148

Displacement, tons: 3,400 standard; 4,700 full load
Dimensions, feet (metres): 370.7 × 50.8 × 14.7 *(113 × 15.5 × 4.5)*
Main machinery: 2 diesels; 9,000 hp(m) *(6.6 MW)*; 2 shafts
Speed, knots: 18. **Range, miles:** 10,000 at 15 kt
Complement: 100
Military lift: 300 troops; 1,750 tons including about 20 tanks and various trucks; 40 AFVs

Missiles: SAM: 2 or 3 SA-N-5 Grail twin launchers; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg; 16 missiles.
Guns: 2—57 mm/70 (twin); 120 rds/min to 8 km *(4.4 n miles)*; weight of shell 2.8 kg. 4—25 mm/80 (2 twin) (Type 4); 270 rds/min to 3 km *(1.6 n miles)*; weight of shell 0.34 kg.
1—122 mm BM-21; 2—20-barrelled rocket launchers (in Types 3 and 4); range 9 km *(5 n miles)*.
Weapons control: 1 Squeeze Box optronic director (Types 3 and 4).
Radars: Surface search: 2 Don 2; I-band.

Programmes: First ship commissioned in 1966 at Kaliningrad. Last of class completed in 1976. Type name is *bolshoy desantny korabl* meaning large landing ship. One more Type 3 in service with Ukraine.
Structure: These ships have ramps on the bow and stern. In Type 3 the bridge structure has been raised and a forward deck house has been added to accommodate shore bombardment rocket launchers. Type 4 is similar to Type 3 with the addition of two twin 25 mm gun mountings on centreline abaft the bridge superstructure. As well as a tank deck 300 ft long stretching right across the hull there are two smaller deck areas and a hold.
Operational: In the 1980s the class operated regularly off West Africa, in the Mediterranean and in the Indian Ocean, usually with Naval Infantry units embarked. Half the class have been scrapped or laid up. Of the remainder, *Vilkov* is in the Pacific, *Minsk* in the Baltic, and the others in the Black Sea.
Sales: One to Ukraine in 1995.

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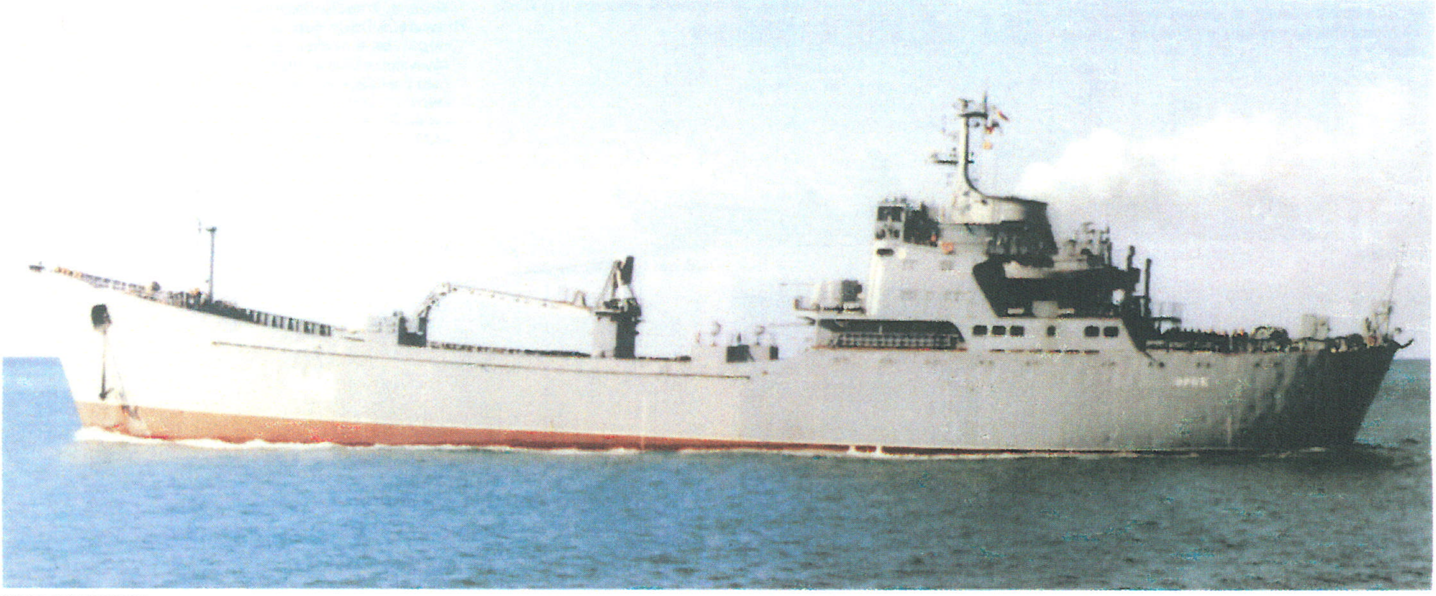

NIKOLAY OBYEKOV *6/2003*, B Lemachko* / 0570915

1 IVAN ROGOV (YEDNOROG) (PROJECT 1174) CLASS (LPDHM)

Name	*No*	*Builders*	*Launched*	*Commissioned*
MITROFAN MOSKALENKO	020	Yantar, Kaliningrad	July 1989	Mar 1991

Displacement, tons: 8,260 standard; 14,060 full load
Dimensions, feet (metres): 516.7 × 80.2 × 21.2 (27.8 flooded) *(157.5 × 24.5 × 6.5 (8.5))*
Main machinery: 2 M8K gas-turbines; 39,998 hp(m) *(29.4 MW)*; 2 shafts
Speed, knots: 19. **Range, miles:** 7,500 at 14 kt
Complement: 239 (37 officers)

Military lift: 522 troops (battalion); 20 tanks or equivalent weight of APCs and trucks; 3 ACVs or 6 LCM in docking bay

Missiles: SAM: SA-N-4 Gecko twin launcher ①; semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; warhead 50 kg; altitude 9.1-3,048 m *(30-10,000 ft)*; 20 missiles.
2 SA-N-5 Grail quad launchers; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; warhead 1.5 kg.

Guns: 2—3 in *(76 mm)*/60 (twin) ②; 60 rds/min to 15 km *(8 n miles)*; weight of shell 6.8 kg.
1—122 mm BM-22 (naval); 2—20-barrelled rocket launcher; range 20 km *(10.8 n miles)*.
4—30 mm/65 AK 630 ③; 6 barrels per mounting; 3,000 rds/min combined to 2 km.
Countermeasures: Decoys: 16 PK 10 and 4 PK 16 chaff launchers.
ESM: 3 Bell Shroud; intercept.
ECM: 2 Bell Squat; jammers.
Weapons control: 2 Squeeze Box optronic directors ④.
Radars: Air/surface search: Top Plate A ⑤; 3D; E-band.
Navigation: 2 Don Kay or 2 Palm Frond; I-band.
Fire control: Owl Screech ⑥; G-band (for 76 mm). 2 Bass Tilt ⑦; H/I-band (for 30 mm). Pop Group ⑧; F/H/I-band (for SA-N-4).
CCA: Fly Screen ⑨ and Fly Spike; I-band.
IFF: Salt Pot B.
Tacan: 2 Round House ⑩.
Sonars: Mouse Tail VDS; active search; high frequency.

Helicopters: 4 Ka-29 Helix B ⑪.

Programmes: This was the third of class. Fourth of class was not completed. Type name is *bolshoy desantny korabl* meaning large landing ship.
Structure: Has bow ramp with beaching capability leading from a tank deck 200 ft long and 45 ft wide. Cargo capacity 2,500 tons Stern doors open into a docking bay 250 ft long and 45 ft wide. A helicopter spot forward has a flying-control station and the after helicopter deck and hangar is similarly fitted. Helicopters can enter the hangar from both front and rear. Positions arranged on main superstructure for replenishment of both fuel and solids. Has been reported streaming a VDS from the stern door and has also conducted unidentified missile trials.
Operational: Based in the Northern Fleet at Severomorsk. Two Pacific Fleet units were paid off in 1996 and 1997. The refit and sale of one of these ships to Indonesia was not concluded.
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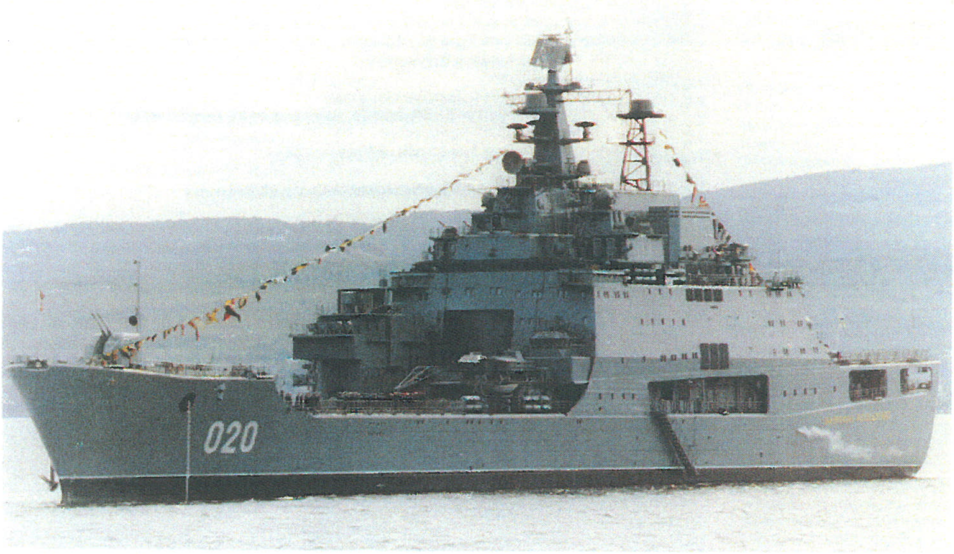
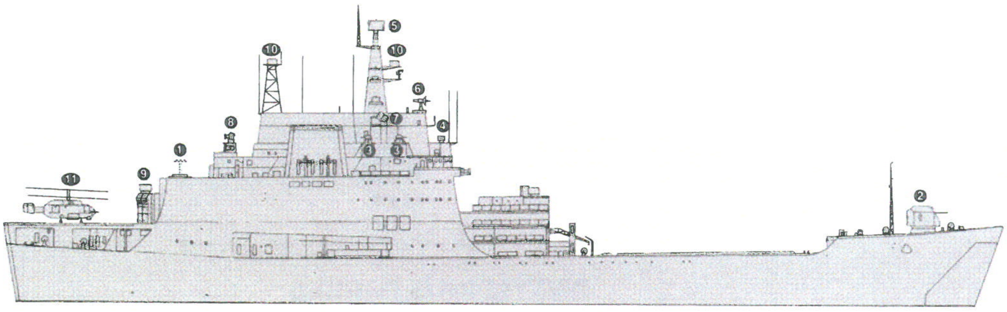


MITROFAN MOSKALENKO *10/1996* / 0019045



MITROFAN MOSKALENKO *(Scale 1 : 1,200), Ian Sturton*

16 ROPUCHA (PROJECT 775/775M) CLASS (LSTM)

North:	**OLENEGORSKIY GORNIAK** 012	**GEORGIY POBEDONOSETS** 016	**KONDOPOGA** 027	**ALEXANDER OTRAKOVSKIY** 031	
Baltic:	**KALININGRAD** 102	**ALEXANDER SHABALIN** 110	**BDK 105** 125	**MINSK** 127	**KOROLEV** 130 (II)
Black:	**AZOV** 151 (II)	**YAMAL** 156	**TSESAR KUNIKOV** 158		
Pacific	**BDK-98** 055	**MUKHTAR AVEZOV** 066	**BOBRUYSK** 070	**NIKOLAY KORSAKOV** 077 (II)	

Displacement, tons: 4,400 full load
Dimensions, feet (metres): 369.1 × 49.2 × 12.1 *(112.5 × 15 × 3.7)*
Main machinery: 2 Zgoda-Sulzer 16ZVB40/48 diesels; 19,230 hp(m) *(14.14 MW)* sustained; 2 shafts
Speed, knots: 17.5. **Range, miles:** 3,500 at 16 kt; 6,000 at 12 kt
Complement: 95 (7 officers)
Military lift: 10 MBT plus 190 troops or 24 AFVs plus 170 troops or mines

Missiles: SAM: 4 SA-N-5 Grail quad launchers (in at least two ships); manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg; 32 missiles.

Guns: 4—57 mm/80 (2 twin) ① (Ropucha I); 120 rds/min to 6 km *(3.3 n miles)*; weight of shell 2.8 kg.
1—76 mm/60 (Ropucha II) ②; 60 rds/min to 15 km *(8 n miles)*; weight of shell 6.8 kg.
2—30 mm/65 AK 630 (Ropucha II).
2—122 mm BM-21 (naval) (in some). 2—20-barrelled rocket launchers; range 9 km *(5 n miles)*.
Mines: 92 contact type.
Weapons control: 2 Squeeze Box optronic directors ③. Hood Wink and Odd Box.
Radars: Air/surface search: Strut Curve ④ (Ropucha I) or Cross Dome (Ropucha II); F-band.
Navigation: Don 2 or Nayada; I-band.
Fire control: Muff Cob ⑤ (Ropucha I); G/H-band.
Bass Tilt (Ropucha II): H/I-band.
IFF: 2 High Pole A or Salt Pot A.
Sonars: Mouse Tail VDS can be carried.

Programmes: Ropucha Is completed at Northern Shipyard, Gdansk, Poland in two spells from 1974-78 (12 ships) and 1980-88. Ropucha IIs started building in 1987 with the first one commissioning in May 1990. The third and last of the class completed in January 1992. Type name is *bolshoy desantny korabl* (BDK) meaning large landing ship.
Structure: A Ro-Ro design with a tank deck running the whole length of the ship. All have very minor differences in appearance. These ships have a higher troop-to-vehicle ratio than the 'Alligator' class. At least five of the class have rocket launchers at the after end of the forecastle. The second type have a 76 mm gun forward in place of one twin 57 mm and an ADG aft instead of the second. Radar and EW suites are also different. The after mast has been replaced by a solid extension to the superstructure.
Operational: Eight more have been deleted so far.
Sales: One to South Yemen in 1979, returned to Russia in late 1991 for refit and was back in Aden in 1993. One to Ukraine in 1996.
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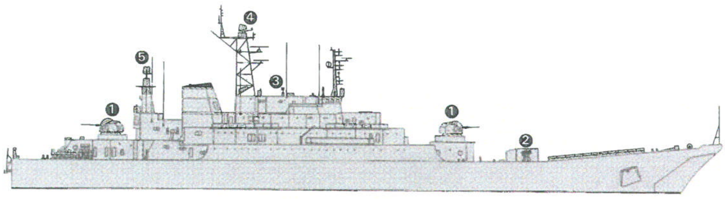
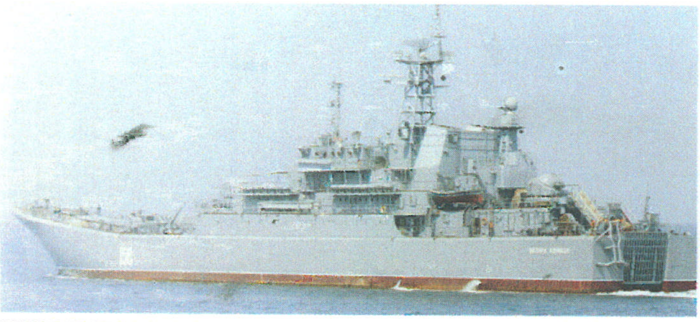
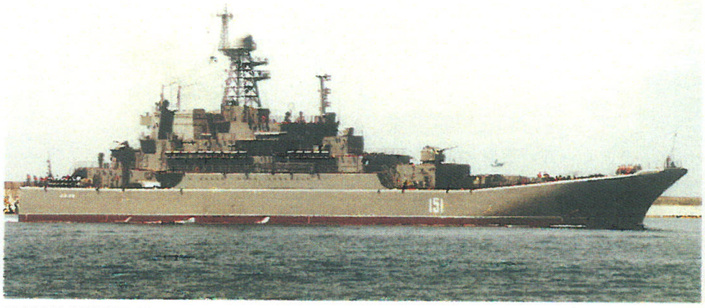


ROPUCHA I *(Scale 1 : 1,200), Ian Sturton*



TSESAR KUNIKOV (ROPUCHA I) *6/2003*, B Lemachko* / 0570914



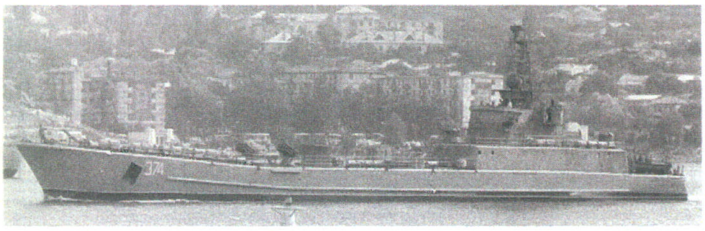
AZOV (ROPUCHA II) *7/2000, Hartmut Ehlers* / 0105558

1 POLNOCHNY B CLASS (PROJECT 771) (LSM)

578

Displacement, tons: 760 standard; 834 full load
Dimensions, feet (metres): 246.1 × 31.5 × 7.5 *(75 × 9.6 × 2.3)*
Main machinery: 2 Kolomna Type 40-D diesels; 4,400 hp(m) *(3.2 MW)* sustained; 2 shafts
Speed, knots: 19. **Range, miles:** 1,000 at 18 kt
Complement: 40-42
Military lift: 180 troops; 350 tons including 6 tanks
Missiles: SAM: 4 SA-N-5 Grail quad launchers.
Guns: 2 or 4—30 mm (1 or 2 twin).
2—140 mm rocket launchers; 18 barrels.
Weapons control: PED-1 system.
Radars: Surface search: Spin Trough; I-band.
Fire control: Drum Tilt; H/I-band (for 30 mm guns).
IFF: High Pole A. Square Head.

Comment: Built at Northern Shipyard, Gdansk, Poland in 1970. The last survivor serves in the Northern Fleet as a logistic support ship. Others of the class are all in reserve or derelict or scrapped. Tank deck 45.7 × 5.2 m *(150 × 17 ft).* ***UPDATED***



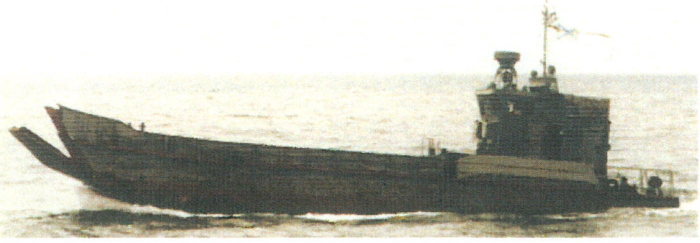
POLNOCHNY *7/1996, van Ginderen Collection* / 0019047

2 ONDATRA (AKULA) (PROJECT 1176) CLASS (LCMs)

DKA 286 713 **DKA 325** 799

Displacement, tons: 145 full load
Dimensions, feet (metres): 78.7 × 16.4 × 4.9 *(24 × 5 × 1.5)*
Main machinery: 2 diesels; 300 hp(m) *(220 kW)*; 2 shafts
Speed, knots: 10. **Range, miles:** 500 at 5 kt
Complement: 5
Military lift: 1 MBT

Comment: First completed in 1979 and associated with *Ivan Rogov*. 33 deleted so far. Tank deck of 45 × 13 ft. Two to Yemen in 1983. These last two are in the Baltic. ***UPDATED***



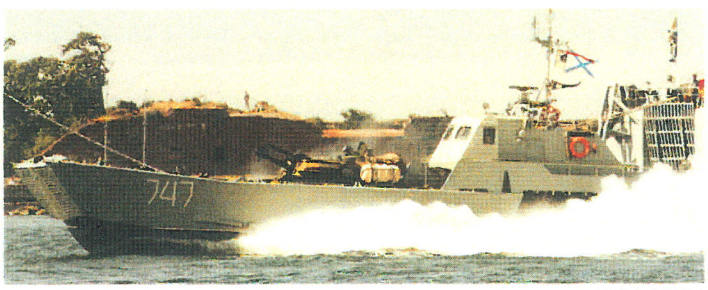
ONDATRA *7/1996*, B Lemachko* / 0570917

1 SERNA CLASS (LCU)

DKA-67 747

Displacement, tons: 105 full load
Dimensions, feet (metres): 86.3 × 19 × 5.2 *(26.3 × 5.8 × 1.6)*
Main machinery: 2 M 503A3 diesels; 5,522 hp(m) *(4.06 MW)*; 2 shafts
Speed, knots: 30. **Range, miles:** 100 at 30 kt; 600 at 22 kt
Complement: 6
Military lift: 45 tons or 100 troops

Comment: High-speed utility landing craft capable of beaching and in service in May 1995. Has an 'air-lubricated' hull. Designed for both military and civilian use by the R Alexeyev Central Design Bureau and built at Nizhny Novgorod. Can be armed. Operational in the Baltic Fleet. Three others have been sold commercially. ***VERIFIED***



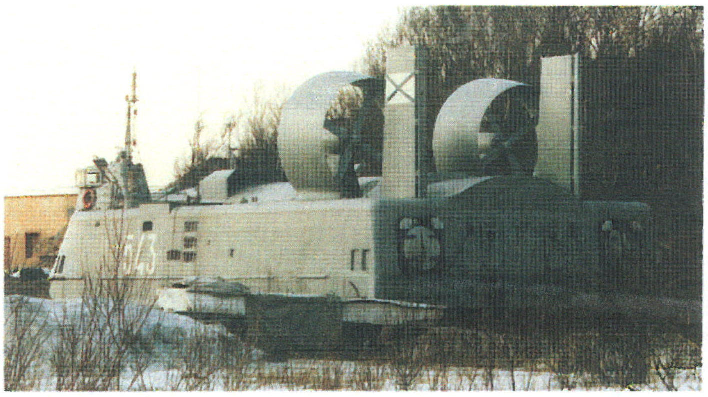
DKA-67 *7/1996, J Ciślak* / 0081688

3 LEBED (KALMAR) (PROJECT 1206) CLASS (ACV/LCUJ)

533 639 640

Displacement, tons: 87 full load
Dimensions, feet (metres): 80.1 × 36.7 *(24.4 × 11.2)*
Main machinery: 2 Ivchenko AI-20K gas turbines for lift and propulsion; 8,000 hp(m) *(5.88 MW)*
Speed, knots: 50. **Range, miles:** 100 at 50 kt
Complement: 6 (2 officers)
Military lift: 2 light tanks or 40 tons cargo or 120 troops
Guns: 2—30 mm (twin) MGs.
Radars: Navigation: Kivach; I-band.

Comment: First entered service 1975. Can be carried in 'Ivan Rogov' class. Has a bow ramp with gun on starboard side and the bridge to port. *533* is in the Northern Fleet and *639* and *640* took part in the Caspian Sea exercise in July 2002. ***UPDATED***



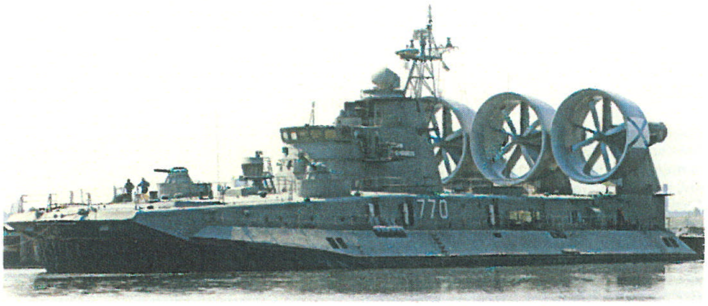
LEBED CLASS *4/1995, Eric Grove* / 0081691

3 POMORNIK (ZUBR) (PROJECT 1232.2) CLASS (ACVM/LCUJM)

MDK-118 YEVGENIY KOCHESHKOV 770 **MDK-94 MORDOVIYA** 782 **MDK-108** 795

Displacement, tons: 550 full load
Dimensions, feet (metres): 189 × 84 *(57.6 × 25.6)*
Main machinery: 5 Type NK-12MV gas-turbines; 2 for lift, 23,672 hp(m) *(17.4 MW)* nominal; 3 for drive, 35,508 hp(m) *(26.1 MW)* nominal
Speed, knots: 63. **Range, miles:** 300 at 55 kt
Complement: 31 (4 officers)
Military lift: 3 MBT or 10 APC plus 230 troops (total 130 tons)
Missiles: SAM: 2 SA-N-5 Grail quad launchers; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg.
Guns: 2—30 mm/65 AK 630; 6 barrels per mounting; 3,000 rds/min combined to 2 km.
2 retractable 122 mm rocket launchers (not in first of class).
Mines: 2 rails can be carried for 80.
Countermeasures: Decoys: MS227 chaff launcher.
ESM: Tool Box; intercept.
Weapons control: Quad Look (DWU-3) (modified Squeeze Box) optronic director.
Radars: Surface search: Curl Stone; I-band.
Fire control: Bass Tilt; H/I-band.
IFF: Salt Pot A/B. Square Head.

Comment: First of class delivered 1986, commissioned in 1988. Last of class launched December 1994. Produced at St Petersburg and at Feodosiya. Bow and stern ramps for ro-ro working. Last survivors are based at Baltiysk and two more are held by Ukraine. One (plus two from Ukraine) transferred and one new build for Greece in 2001. These are the first Former Soviet Union (FSU) naval platform sales to a NATO country. ***UPDATED***



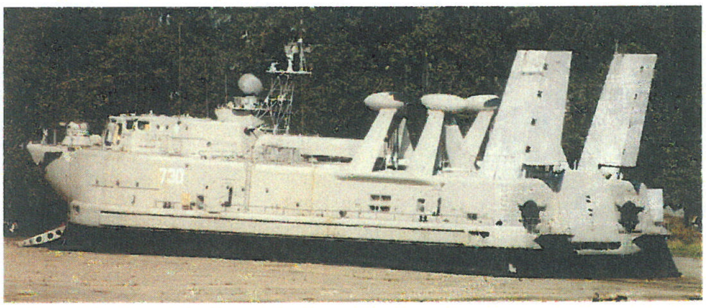
MDK-118 *6/2003*, Guy Toremans* / 0570932

6 AIST (DZHEYRAN) (PROJECT 1232.1) CLASS (ACV/LCUJ)

609 **610** **615** **700** **MDK 113** 722 **MDK 89** 730

Displacement, tons: 298 full load
Dimensions, feet (metres): 155.2 × 58.4 *(47.3 × 17.8)*
Main machinery: 2 Type NK-12M gas turbines driving 4 axial lift fans and 4 propeller units for propulsion; 19,200 hp(m) *(14.1 MW)* nominal
Speed, knots: 70. **Range, miles:** 120 at 50 kt
Complement: 15 (3 officers)
Military lift: 80 tons or 4 light tanks plus 50 troops or 2 medium tanks plus 200 troops or 3 APCs plus 100 troops
Guns: 4—30 mm/65 (2 twin) AK 630; 6 barrels per mounting; 3,000 rds/min combined to 2 km.
Countermeasures: Decoys: 2 PK 16 chaff launchers.
Radars: Surface search: Kivach; I-band.
Fire control: Drum Tilt; H/I-band.
IFF: High Pole B. Square Head.

Comment: First produced at Leningrad in 1970, subsequent production at rate of about six every four years. The first large hovercraft for naval use. Similar to UK SR. N4. Type name is *maly desantny korabl na vozdushnoy podushke* meaning small ACV. Modifications have been made to the original engines and some units have been reported as carrying two SA-N-5 quadruple SAM systems and chaff launchers. Three (700 series) are based in the Baltic, the other three are in the Caspian. *609* participated in the Caspian Sea exercise in 2002. ***VERIFIED***



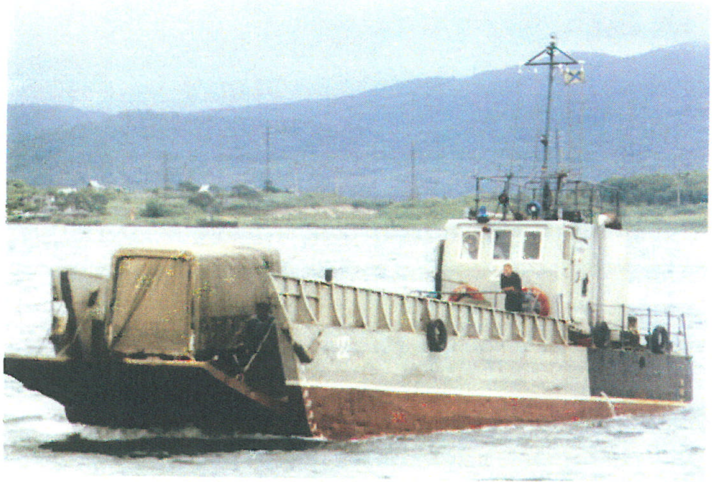
MDK 89 *9/2000, J Ciślak* / 0105561

70 T-4 CLASS (PROJECT 1785) (LCM)

Displacement, tons: 35 light; 93 full load
Dimensions, feet (metres): 66.9 × 17.7 × 3.9 *(20.4 × 5.4 × 1.2)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 10
Complement: 2
Military lift: 50 tons cargo

Comment: Numbers are approximate and many may now be employed for civilian use.

NEW ENTRY



T-4 class *7/2001*, B Lemachko* / 0570916

INTELLIGENCE VESSELS

Notes: (1) About half the AGIs are fitted with SA-N-5/8 SAM launchers.
(2) SSV in pennant numbers of some AGIs is a contraction of *sudno svyazy* meaning communications vessel.
(3) GS in pennant numbers of some AGIs is a contraction of *gidrograficheskoye sudno* meaning survey ship.
(4) Activity reported in all Fleet areas, as well as in the Mediterranean, in 2003.

2 BALZAM (ASIA) (PROJECT 1826) CLASS (AGIM)

Name	*No*	*Builders*	*Commissioned*
PRIBALTIKA	SSV 080	Yantar, Kaliningrad	July 1984
BELOMORE	SSV 571	Yantar, Kaliningrad	Dec 1987

Displacement, tons: 4,500 full load
Dimensions, feet (metres): 344.5 × 50.9 × 16.4 *(105 × 15.5 × 5)*
Main machinery: 2 diesels; 18,000 hp(m) *(13.2 MW)*; 2 shafts
Speed, knots: 20. **Range, miles:** 7,000 at 16 kt
Complement: 200
Missiles: SAM: 2 SA-N-5 Grail quad launchers; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg; 16 missiles.
Guns: 1—30 mm/65 AK 630; 6 barrels per mounting.
Radars: Surface search: Palm Frond and Don Kay; I-band.
Sonars: Lamb Tail/Mouse Tail VDS can be fitted.

Comment: Notable for twin radomes. Full EW and optronic fits. The first class of AGI to be armed. SSV 571 based in the Northern fleet and SSV 080, having been laid up in Vladivostok, has been re-activated in the Pacific fleet. Capable of underway replenishment.

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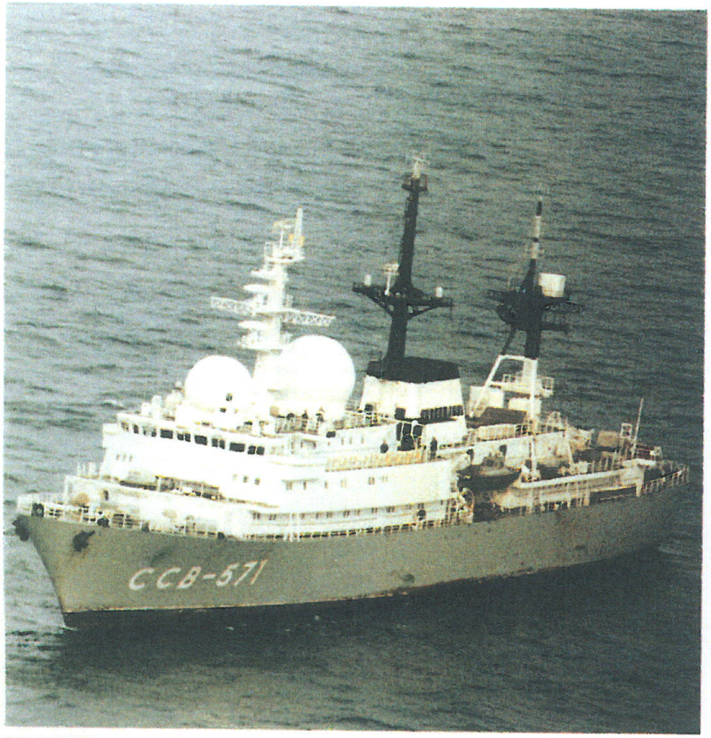

BELOMORE *4/1994* / 0081694

7 VISHNYA (PROJECT 864) CLASS (AGIM)

Name	*No*	*Builders*	*Commissioned*
TAVRIYA	SSV 169	Northern Shipyard, Gdansk	Dec 1987
ODOGRAF	SSV 175	Northern Shipyard, Gdansk	July 1988
PRIAZOVE	SSV 201	Northern Shipyard, Gdansk	Jan 1987
KURILY	SSV 208	Northern Shipyard, Gdansk	Apr 1987
VASSILY TATISCHEV (ex-*Pelengator*)	SSV 231	Northern Shipyard, Gdansk	Apr 1989
MERIDIAN	SSV 520	Northern Shipyard, Gdansk	July 1986
KARELIYA	SSV 535	Northern Shipyard, Gdansk	July 1987

Displacement, tons: 3,470 full load
Dimensions, feet (metres): 309.7 × 47.9 × 14.8 *(94.4 × 14.6 × 4.5)*
Main machinery: 2 Zgoda 12AV25/30 diesels; 4,406 hp(m) *(3.24 MW)* sustained; 2 auxiliary electric motors; 286 hp(m) *(210 kW)*; 2 shafts; cp props
Speed, knots: 16. **Range, miles:** 7,000 at 14 kt
Complement: 146
Missiles: SAM: 2 SA-N-5 Grail quad launchers; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg.
Guns: 2—30 mm/65 AK 630; 6 barrels per mounting. 2—72 mm 4-tubed rocket launchers.
Radars: Surface search: 2 Nayada; I-band.
Sonars: Lamb Tail VDS can be carried.

Comment: SSV 231 and 520 based in the Baltic, SSV 201 in the Black Sea, SSV 169 and SSV 175 in the Northern Fleet and SSV 208 in the Pacific. All have a full EW fit plus optronic systems and datalinks. Punch Bowl is fitted in SSV 231 and possibly in others. Some superstructure differences in all of the class. NBC pressurised citadels. Ice-strengthened hulls. All are comparatively active.

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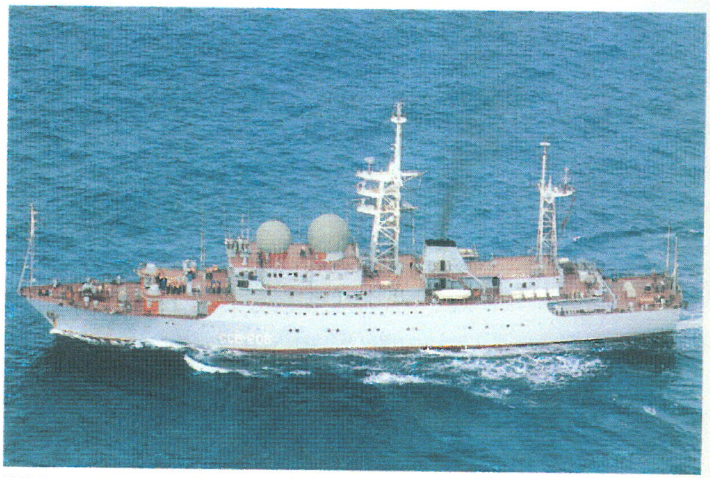
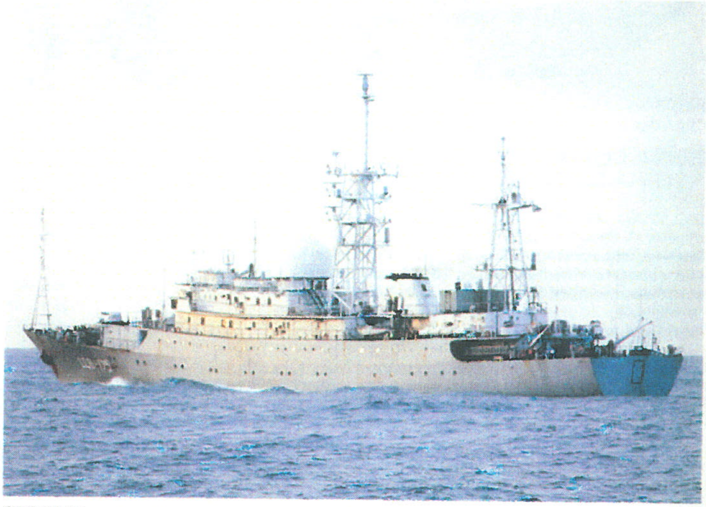
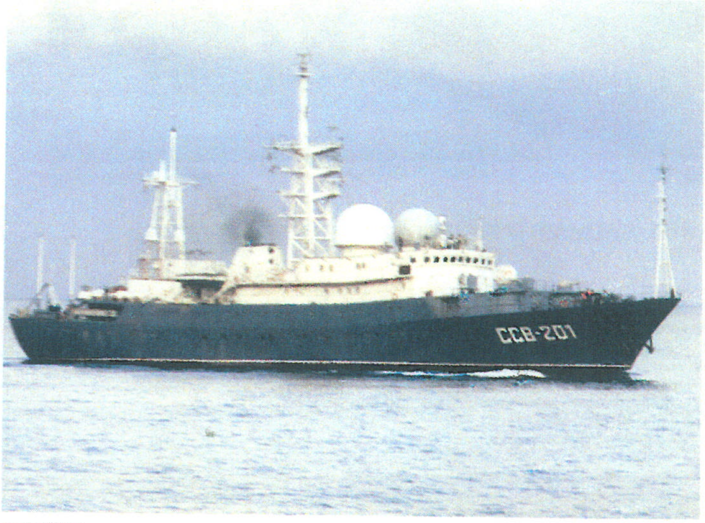


KURILY *10/2001, Ships of the World* / 0130742



ODOGRAF *6/2001* / 0126311



PRIAZOVE *9/2000, B Lemachko* / 0126220

3 MOMA (PROJECT 861M) CLASS (AGI/AGIM)

EKVATOR **LIMAN** **KILDIN** (mod)

Displacement, tons: 1,240 standard; 1,600 full load
Dimensions, feet (metres): 240.5 × 36.8 × 12.8 *(73.3 × 11.2 × 3.9)*
Main machinery: 2 Zgoda-Sulzer 6TD48 diesels; 3,300 hp(m) *(2.43 MW)* sustained; 2 shafts; cp props
Speed, knots: 17. **Range, miles:** 9,000 at 11 kt
Complement: 66 plus 19 scientists
Missiles: SAM: 2 SA-N-5 Grail quad launchers in some.
Radars: Surface search: 2 Don 2; I-band.

Comment: The two modernised ships have a foremast in the fore well-deck and a low superstructure before the bridge. Non-modernised ships retain their cranes in the forward well-deck. Similar class operates as survey ships. Built at Gdansk, Poland between 1968-72. All based in the Black Sea and two of these ships were active in the Adriatic during NATO operations against Serbia in 1999. One to Ukraine in 1996.

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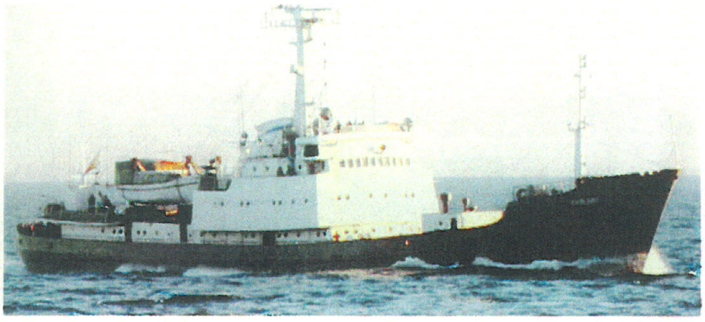

KILDIN *6/2002, Globke Collection* / 0528331

3 ALPINIST (PROJECT 503M/R) CLASS (AGIM)

GS 7 **GS 19** **SYZRAN** GS 39

Displacement, tons: 1,260 full load
Dimensions, feet (metres): 177.1 × 34.4 × 13.1 *(54 × 10.5 × 4)*
Main machinery: 1 SKL 8 NVD 48 A2U diesel; 1,320 hp(m) *(970 kW)* sustained; 1 shaft; bow thruster
Speed, knots: 13. **Range, miles:** 7,000 at 13 kt
Complement: 50
Missiles: SAM: 1 SA-N-5 Grail quad launcher *(GS 39)*.
Countermeasures: ESM: 2 Watch Dog; intercept.
Radars: Surface search: Nayada and Kivach; I-band.
Sonars: Paltus; active; high frequency.

Comment: Similar to Alpinist stern-trawlers which were built at about 10 a year at the Leninskaya Kuznitsa yard at Kiev and at the Volvograd shipyard. These AGIs were built at Kiev. In 1987 and 1988 forecastle was extended further aft and the electronics fit upgraded. *GS 7* in the Pacific, the other two in the Baltic. A fourth of class converted for ASW training was laid up in 1997.

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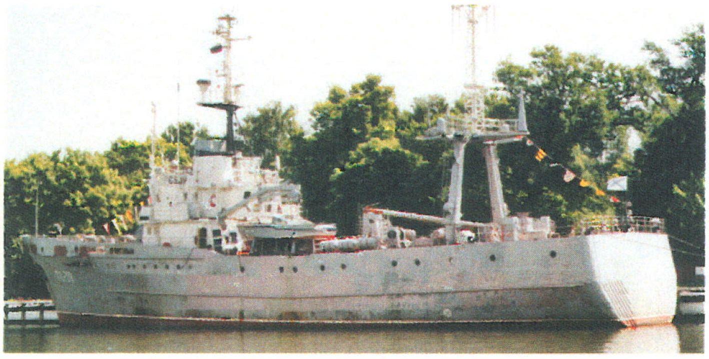

SYZRAN *6/2002, Frank Findler* / 0528314

SURVEY AND RESEARCH SHIPS

Notes: Civilian research ships are now all used for commercial purposes only or are laid up, and are no longer naval associated, although some can still be leased for short operations. The former section has therefore been deleted since 1998.

12 YUG (PROJECT 862) CLASS (AGS/AGI/AGE)

North
PLUTON
STRELETS
GORIZONT
GIDROLOG
VIZIR
SENEZH
TEMRYUK (ex-*Mangyshlak*) SSV 700

Pacific
V ADM VORONTSOV (ex-*Briz*)
PEGAS
MARSHAL GELOVANI

Baltic
PERSEY
NIKOLAY MATUSEVICH

Displacement, tons: 2,500 full load
Dimensions, feet (metres): 270.6 × 44.3 × 13.1 *(82.5 × 13.5 × 4)*
Main machinery: 2 Zgoda-Sulzer Type 6TD48 diesels; 3,300 hp(m) *(2.43 MW)* sustained; 2 auxiliary motors; 272 hp(m) *(200 kW)*; 2 shafts; cp props; bow thruster; 300 hp *(220 kW)*
Speed, knots: 15. **Range, miles:** 9,000 at 12 kt
Complement: 46 (8 officers) plus 20 scientists
Guns: 6—25 mm/80 (3 twin) (fitted for but not with).
Radars: Navigation: Palm Frond or Nayada; I-band.

Comment: Built at Northern Shipyard, Gdansk 1977-83. Have 4 ton davits at the stern and two survey craft. Others have minor variations around the stern area. *Pluton* and *Strelets* have been taken over by the Arctic Border Guard.. SSV 700 classified as AGE. The Pacific units are understood to be non-operational.

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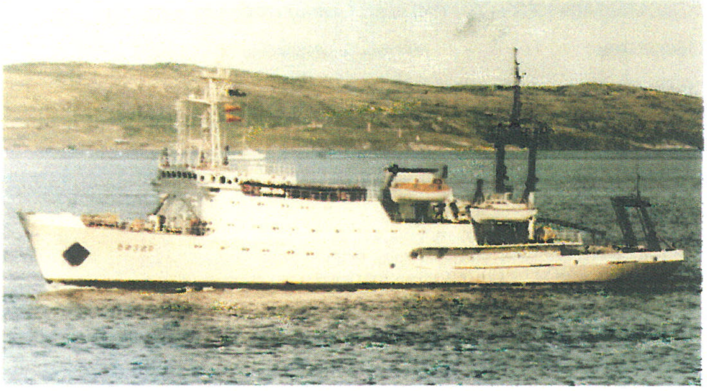

VIZIR *6/2003*, B Lemachko* / 0570918

2 SIBIRIYAKOV (PROJECT 865) CLASS (AGOR)

SIBIRIYAKOV **ROMZUALD MUKLEVITCH**

Displacement, tons: 3,422 full load
Dimensions, feet (metres): 281.2 × 49.2 × 16.4 *(85.7 × 15 × 5)*
Main machinery: Diesel-electric; 2 Cegielski-Sulzer 12AS25 diesels; 6,480 hp(m) *(4.44 MW)* sustained; 2 motors; 2 shafts; cp props; bow and stern thrusters
Speed, knots: 14. **Range, miles:** 11,000 at 14 kt
Complement: 58 plus 12 scientists
Guns: 1—30 mm AK 630 can be carried.
Radars: Navigation: 2 Nayada; I-band.

Comment: Built in Northern Shipyard, Gdansk 1990-92. Has a pressurised citadel for NBC defence, and a degaussing installation. Six separate laboratories for hydrographic and geophysical research. Two submersibles can be embarked. Both ships are very active, *Sibiriyakov* in the Baltic at Kronstadt, and *Muklevitch* in the North.

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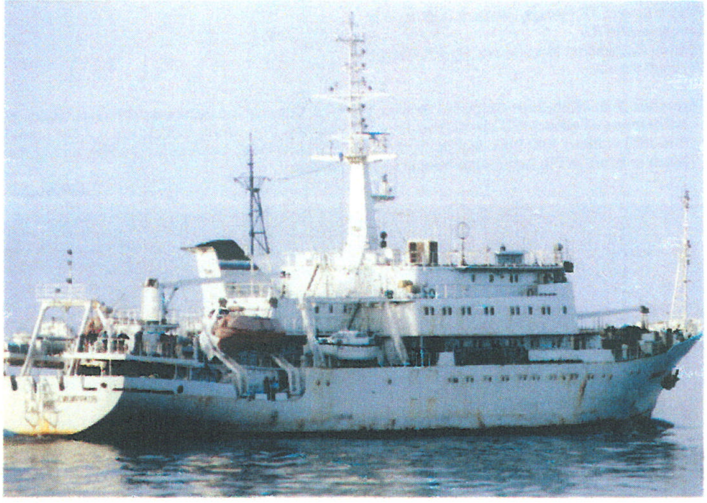

SIBIRIYAKOV *5/2000* / 0105564

3 NIKOLAY ZUBOV (PROJECT 850) CLASS (AGOR)

ANDREY VILKITSKY **BORIS DAVIDOV** **SEMEN DEZHNEV**

Displacement, tons: 2,674 standard; 3,021 full load
Dimensions, feet (metres): 294.2 × 42.7 × 15 *(89.7 × 13 × 4.6)*
Main machinery: 2 Zgoda-Sulzer 8TD48 diesels; 4,400 hp(m) *(3.23 MW)* sustained; 2 shafts
Speed, knots: 16.5. **Range, miles:** 11,000 at 14 kt
Complement: 50
Radars: Navigation: Palm Frond or Don 2; I-band.

Comment: Oceanographic research ships built at Szczecin Shipyard, Poland in 1964-68. Also employed on navigational, sonar and radar trials. Has nine laboratories and small deck aft for hydromet-balloon work. Carry two to four survey launches. Based in the Northern Fleet. *Bellingsgauzen* to Ukraine in 1995.

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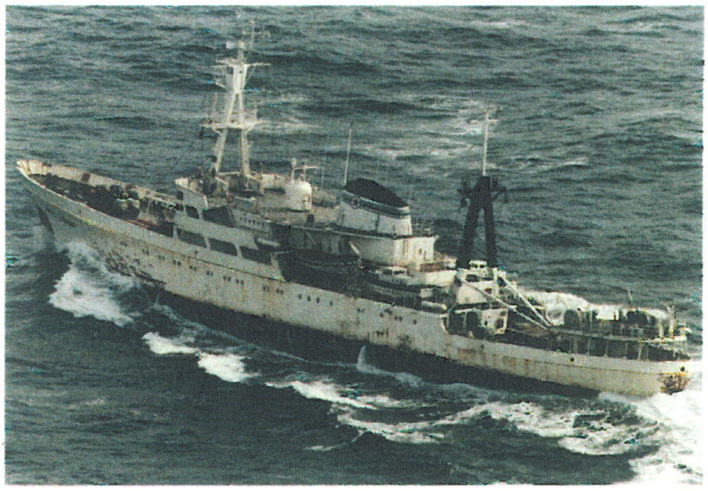

BORIS DAVIDOV *6/1994* / 0081698

2 AKADEMIK KRYLOV (PROJECT 852/856) CLASS (AGORH)

LEONID DEMIN **ADMIRAL VLADIMIRSKIY**

Displacement, tons: 9,100 full load
Dimensions, feet (metres): 482.3 × 60.7 × 20.3 *(147 × 18.5 × 6.2)*
Main machinery: 4 Sulzer diesels; 14,500 hp(m) *(10.7 MW)*; 2 shafts; bow and stern thrusters
Speed, knots: 20. **Range, miles:** 36,000 at 15 kt
Complement: 120
Radars: Navigation: Nayada, Palm Frond and Don 2; I-band.
Helicopters: 1 Hormone.

Comment: Built in Szczecin 1974-79. Carry two survey launches and have 26 laboratories. Based in the Baltic at Kronstadt. *Akademik Krylov* sold to a Greek company in 1993 and now flies the Cyprus flag. *Admiral Vladimirskiy*, previously inactive at Kronstadt, may have been reactivated.

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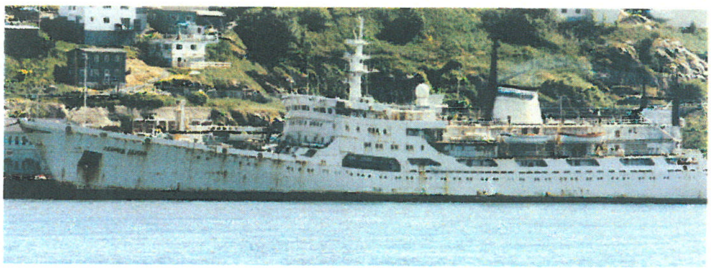

LEONID DEMIN *5/1994* / 0081696

9 MOMA (PROJECT 861) CLASS (AGS)

ANTARES **ASKOLD** **SEVER** (AGE) **ARTIKA** **OKEAN**
ANTARKTYDA **MARS** **KRILON** **ANDROMEDA**

Displacement, tons: 1,550 full load
Dimensions, feet (metres): 240.5 × 36.8 × 12.8 *(73.3 × 11.2 × 3.9)*
Main machinery: 2 Zgoda-Sulzer 6TD48 diesels; 3,300 hp(m) *(2.43 MW)* sustained; 2 shafts; cp props
Speed, knots: 17. **Range, miles:** 9,000 at 11 kt
Complement: 55
Radars: Navigation: Nayada and Don 2; I-band.
IFF: High Pole A.

Comment: Built at Northern Shipyard, Gdansk 1967-72. Some of the class are particularly active in ASW research associated operations. Four laboratories. One survey launch and a 7 ton crane. The AGE is fitted with bow probes. Two in the Northern Fleet, three in the Pacific, two in the Black and two in the Baltic. One transferred to Ukraine.

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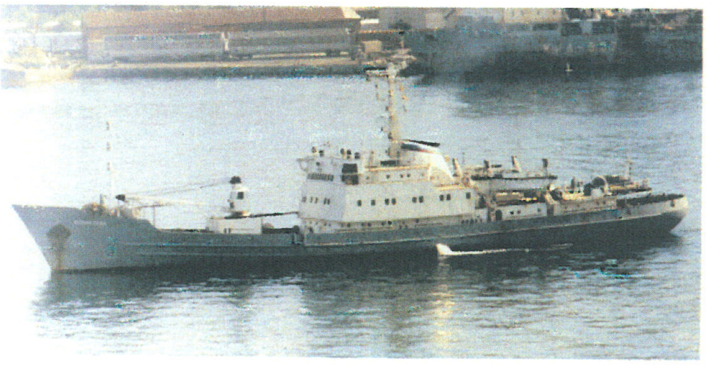

ANTARKTYDA *6/1998*, B Lemachko* / 0570919

21 FINIK (PROJECT 872) CLASS (AGS/AGE)

North:	**GS 87**	**GS 260**	**GS 278**	**GS 297**	**GS 392**	**GS 405**	
Pacific:	**GS 44**	**GS 47**	**GS 84**	**GS 272**	**GS 296**	**GS 397**	**GS 404**
Black:	**GS 86**	**GS 402**					
Baltic:	**GS 270**	**GS 301**	**GS 388**	**GS 399**	**GS 400**	**GS 403**	

Displacement, tons: 1,200 full load
Dimensions, feet (metres): 201.1 × 35.4 × 10.8 *(61.3 × 10.8 × 3.3)*
Main machinery: 2 Cegielski-Sulzer 6AL25/30 diesels; 1,920 hp(m) *(1.4 MW)*; auxiliary propulsion; 2 motors; 204 hp(m) *(150 kW)*; 2 shafts; cp props; bow thruster
Speed, knots: 13. **Range, miles:** 3,000 at 13 kt
Complement: 26 (5 officers) plus 9 scientists
Radars: Navigation: Kivach B; I-band.

Comment: Improved 'Biya' class. Built at Northern Shipyard, Gdansk 1978-83. Fitted with 7 ton crane for buoy handling. Can carry two self-propelled pontoons and a boat on well-deck. Some have been used commercially. Ships of same class serve in the Polish Navy. Three transferred to Ukraine in 1997. Some may be laid up.

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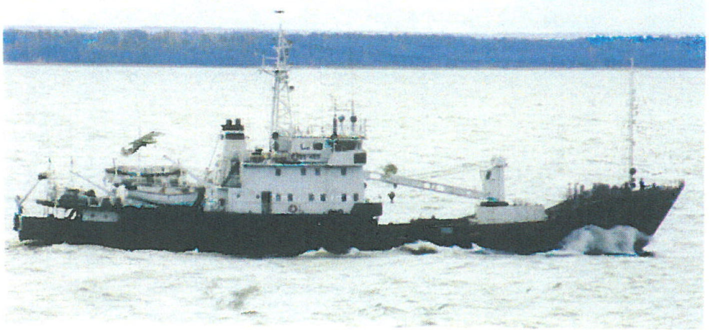

GS 403 *10/2002*, B Lemachko* / 0570911

7 BIYA (PROJECT 870/871) CLASS (AGS)

North	Pacific	Baltic
GS 193	**GS 200**	**GS 204**
	GS 210	**GS 208**
	GS 269	**GS 214**

Displacement, tons: 766 full load
Dimensions, feet (metres): 180.4 × 32.1 × 8.5 *(55 × 9.8 × 2.6)*
Main machinery: 2 diesels; 1,200 hp(m) *(882 kW)*; 2 shafts; cp props
Speed, knots: 13. **Range, miles:** 4,700 at 11 kt
Complement: 25
Radars: Navigation: Don 2; I-band.

Comment: Built at Northern Shipyard, Gdansk 1972-76. With laboratory and one survey launch and a 5 ton crane. Two transferred to Ukraine in 1997.

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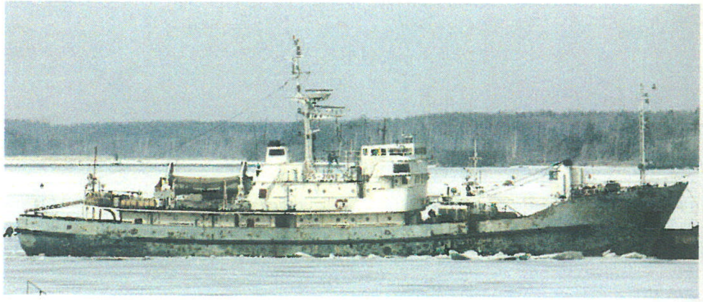

BIYA *4/1997, Riku Lehtinen* / 0081700

6 KAMENKA (PROJECT 870/871) CLASS (AGS)

GS 66 **GS 113** **GS 118** **GS 199** **GS 207** **GS 211**

Displacement, tons: 760 full load
Dimensions, feet (metres): 175.5 × 29.8 × 8.5 *(53.5 × 9.1 × 2.6)*
Main machinery: 2 Sulzer diesels; 1,800 hp(m) *(1.32 MW)*; 2 shafts; cp props
Speed, knots: 14. **Range, miles:** 4,000 at 10 kt
Complement: 25
Radars: Navigation: Don 2; I-band.
IFF: High Pole.

Comment: Built at Northern Shipyard, Gdansk 1968-69. A 5 ton crane forward. They do not carry a survey launch but have facilities for handling and stowing buoys. Two in the Baltic and four in the Pacific. One transferred to Vietnam in 1979, one to Estonia in 1996 and one to Ukraine in 1997.

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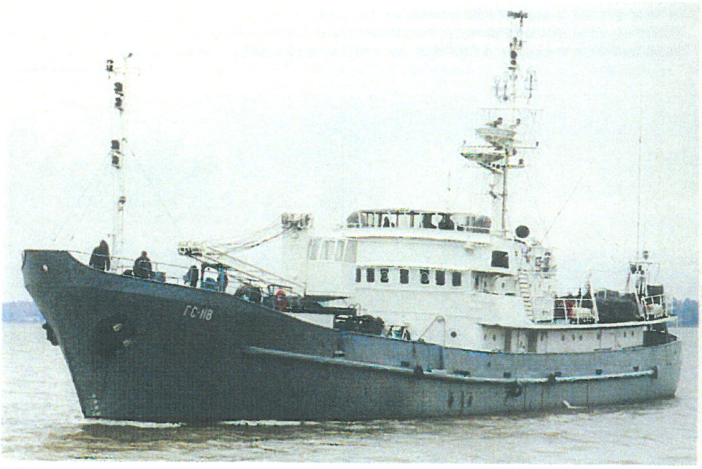

GS 118 *6/2003*, B Lemachko* / 0570901

2 ONEGA (PROJECT 1806) CLASS (AGS)

AKADEMIK SEMINIKHIN SFP 183 **AKADEMIK ISANIN** SFP 177

Displacement, tons: 2,150 full load
Dimensions, feet (metres): 265.7 × 36 × 13.7 *(81 × 11 × 4.2)*
Main machinery: 2 gas turbines; 8,000 hp(m) *(5.88 MW)*; 1 shaft
Speed, knots: 20
Complement: 45
Radars: Navigation: Nayada; I-band.

Comment: Built at Zelenodolsk and first seen in September 1973. Helicopter platform but no hangar in earlier ships of the class but in later hulls the space is taken up with more laboratory accommodation. Used as hydroacoustic monitoring ships. *Akademik Seminikhin* was completed in October 1992. One to Ukraine in 1997. *Akademik Seminikhin* based in the Baltic and *Akademik Isanin* in the Northern Fleet. Others are laid up in each of the four Fleets.

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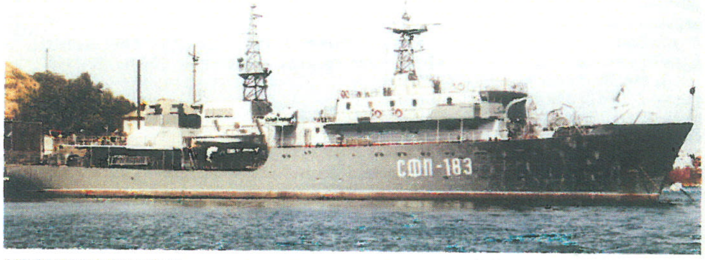


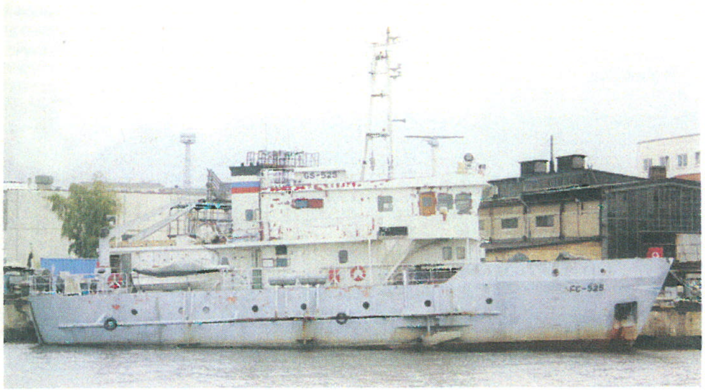
AKADEMIK SEMINIKHIN *7/2000, Hartmut Ehlers* / 0105566

2 VINOGRAD CLASS (AGOR)

GS 525	**GS 526**

Displacement, tons: 498 full load
Dimensions, feet (metres): 108.3 × 34.1 × 9.1 *(33 × 10.4 × 2.8)*
Main machinery: Diesel-electric; 2 diesels; 2 motors; 1,200 hp(m) *(882 kW)*; 2 trainable props
Speed, knots: 9. **Range, miles:** 1,000 at 6 kt
Complement: 19

Comment: Built by Rauma-Repola, Finland, 1985-87 as hydrographic research ships. *GS 525* commissioned 12 November 1985 and *GS 526* on 17 December 1985. *525* is in the Baltic and *526* in the North. Both have side scan sonars. A similar ship has been reported operating with the Northern Fleet. ***VERIFIED***

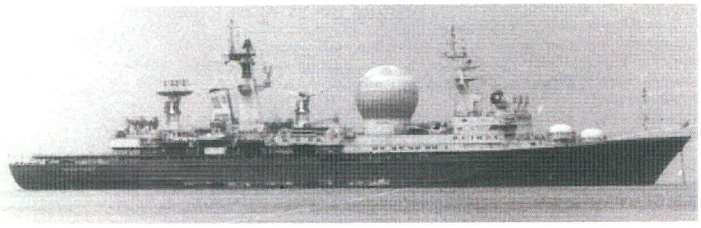

GS 525 *6/1998, Hartmut Ehlers* / 0050054

1 MARSHAL NEDELIN (PROJECT 1914) CLASS (MISSILE RANGE SHIP) (AGMH)

MARSHAL KRYLOV

Displacement, tons: 24,500 full load
Dimensions, feet (metres): 695.5 × 88.9 × 25.3 *(212 × 27.1 × 7.7)*
Main machinery: 2 gas turbines; 54,000 hp(m) *(40 MW)*; 2 shafts
Speed, knots: 20. **Range, miles:** 22,000 at 16 kt
Complement: 450
Radars: Air search: Top Plate.
Navigation: 3 Palm Frond; I-band.
Helicopter control: Fly Screen B; I-band.
Space trackers: End Tray (balloons). Quad Leaf. 3 Quad Wedge. 4 smaller aerials.
Tacan: 2 Round House.
Helicopters: 2-4 Ka-32 Helix C.

Comment: Completed at Admiralty Yard, Leningrad 23 February 1990. Fitted with a variety of space and missile associated electronic systems. Fitted for but not with six twin 30 mm/65 ADG guns and three Bass Tilt fire-control radars. Naval subordinated, the task is monitoring missile tests with a wartime role of command ship. The Ship Globe radome is for SATCOM. Based in the Pacific and active. Second of class deleted. ***UPDATED***


MARSHAL KRYLOV *10/1995, van Ginderen Collection*

TRAINING SHIPS

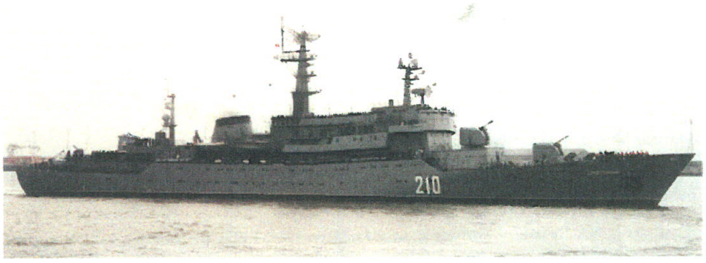
Notes: The 'Mir' class sail training ships have no military connections.

2 SMOLNY (PROJECT 887) CLASS (AX)

PEREKOP 200	**SMOLNY** 210

Displacement, tons: 9,150 full load
Dimensions, feet (metres): 452.8 × 53.1 × 21.3 *(138 × 16.2 × 6.5)*
Main machinery: 2 Zgoda Sulzer 12ZV 40/48 diesels; 15,000 hp(m) *(11 MW)*; 2 shafts
Speed, knots: 20. **Range, miles:** 9,000 at 15 kt
Complement: 137 (12 officers) plus 330 cadets
Guns: 4—3 in *(76 mm)*/60 (2 twin). 4—30 mm/65 (2 twin).
A/S mortars: 2 RBU 2500.
Countermeasures: ESM: 2 Watch Dog; radar warning.
Radars: Air/surface search: Head Net C; 3D; E-band; range 128 km *(70 n miles)*.
Navigation: 4 Don 2; I-band. Don Kay *(Perekop)*; I-band.
Fire control: Owl Screech; G-band. Drum Tilt; H/I-band.
IFF: 2 High Pole A. Square Head.
Sonars: Mouse Tail VDS; active; high frequency.

Comment: Built at Szczecin, Poland. *Smolny* completed in 1976, *Perekop* in 1977. Have considerable combatant potential. Both are active in the Baltic. *Smolny* visited Cartagena in 2002. ***VERIFIED***

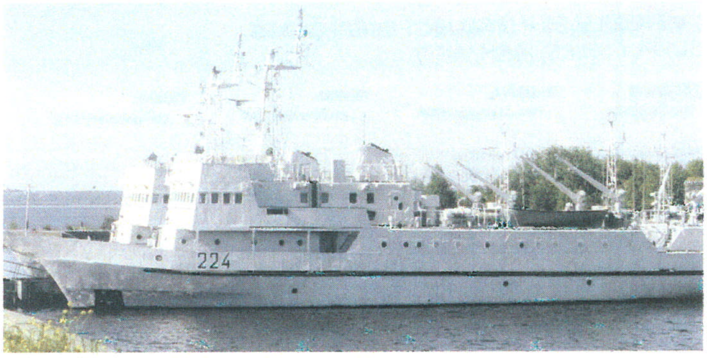

SMOLNY *7/2002, M Declerck* / 0528296

10 PETRUSHKA (UK-3) CLASS (AXL)

MK 157	**MK 194**	**MK 207**	**MK 288**	**MK 1277**
PSK 1304	**PSK 1519**	**PSK 1556**	**PSK 1562**	**PSK 2017**

Displacement, tons: 335 full load
Dimensions, feet (metres): 129.3 × 27.6 × 7.2 *(39.4 × 8.4 × 2.2)*
Main machinery: 2 Wola H12 diesels; 756 hp(m) *(556 kW)*; 2 shafts
Speed, knots: 11. **Range, miles:** 1,000 at 11 kt
Complement: 13 plus 30 cadets

Comment: Training vessels built at Wisla Shipyard, Poland; first one commissioned in 1989. Very similar to the SK 620 class used as ambulance craft. Used for seamanship and navigation training and may be commercially owned. Three are active in the Pacific, and three in the Baltic with a further eight laid up. ***UPDATED***


PETRUSHKA CLASS *6/2003*, E & M Laursen* / 0570909

AUXILIARIES

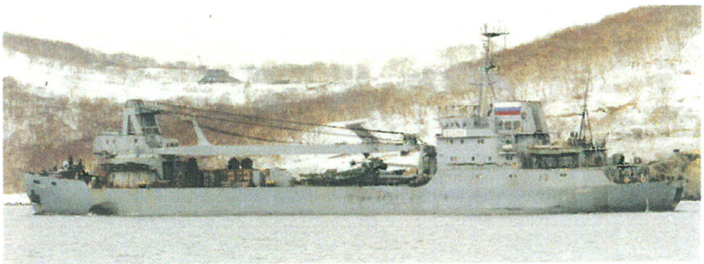
Notes: (1) *Berezina* (154) returned to service in 2000 as a civilian manned auxiliary but has yet to be reactivated. She was in dock at Sevastopol during 2002.
(2) 'Lama' class *Voronesh* has been renamed PRTB-33 and is an alongside civilian manned support ship in the Black Sea.
(3) Two 'Belyanka' class tankers *Amur* and *Pinega* are used for stowing low level radioactive waste.

2 AMGA (PROJECT 1791) CLASS (MISSILE SUPPORT SHIPS) (AEM)

VETLUGA	**DAUGAVA**

Displacement, tons: 6,100 *(Vetluga)*, 6,350 *(Daugava)* full load
Dimensions, feet (metres): 354.3 × 59 × 14.8 *(108 × 18 × 4.5) (Vetluga)*
Main machinery: 2 diesels; 9,000 hp(m) *(6.6 MW)*; 2 shafts
Speed, knots: 16. **Range, miles:** 4,500 at 14 kt
Complement: 210
Guns: 4—25 mm/80 (2 twin).
Radars: Surface search: Strut Curve; F-band.
Navigation: Don 2; I-band.
IFF: High Pole B.

Comment: Built at Gorkiy. Ships with similar duties to the 'Lama' class. Fitted with a large 55 ton crane forward and thus capable of handling much larger missiles than their predecessors. Each ship has a different length and type of crane to handle later types of missiles. Designed for servicing submarines. *Vetluga* completed in 1976 and *Daugava* (5 m longer than *Vetluga*) in 1981. Both are in the Pacific Fleet. A third of class is laid up in the North. ***UPDATED***


DAUGAVA *3/2003*, B Lemachko* / 0573518

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1 MALINA (PROJECT 2020) CLASS (NUCLEAR SUBMARINE SUPPORT SHIP) (AS)

PM 74

Displacement, tons: 10,500 full load
Dimensions, feet (metres): 449.5 × 68.9 × 18.4 *(137 × 21 × 5.6)*
Main machinery: 4 gas turbines; 60,000 hp(m) *(44 MW)*; 2 shafts
Speed, knots: 17
Complement: 260
Radars: Navigation: 2 Palm Frond or 2 Nayada; I-band.

Comment: Built at Nikolayev. First deployed to Pacific in 1986. PM is an abbreviation of Plavuchaya Masterskaya (Floating workshop). A fourth of class *(PM 16)* launched early in 1992, was not completed. Designed to support nuclear-powered submarines and surface ships. Carry two 15 ton cranes. Two others (PM 914 (ex-PM 12) and PM 921 (ex-PM 63)) in the North are inactive and used for storing low level radioactive waste.

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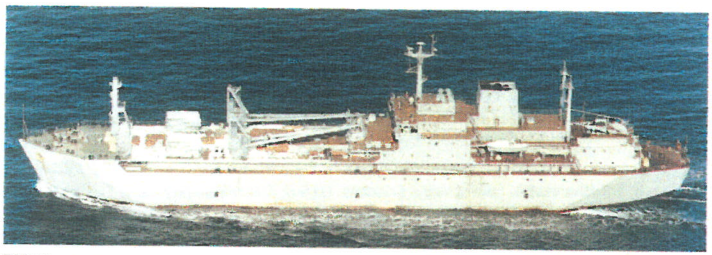

PM 74 *7/1996* / 0081704

4 VYTEGRALES II (PROJECT 596P) CLASS (SUPPLY SHIPS) (AKH/AGF)

APSHERON	**DAURIYA**	**SEVAN**	**YAMAL**
(ex-*Vagales*) —	(ex-*Vyborgles*) 506	(ex-*Siverles*) 208	(ex-*Tosnoles*) 212

Displacement, tons: 6,150 full load
Dimensions, feet (metres): 400.3 × 55.1 × 22.3 *(122.1 × 16.8 × 6.8)*
Main machinery: 1 Burmeister & Wain 950VTBF diesel; 5,200 hp(m) *(3.82 MW)*; 1 shaft
Speed, knots: 15
Complement: 46
Radars: Navigation: Nayada or Palm Frond or Spin Trough; I-band.
CCA: Fly Screen.
Helicopters: 1 Ka-25 Hormone C (not in *Yamal*).

Comment: Standard timber carriers of a class of 27. These ships were modified for naval use in 1966-68 with helicopter flight deck. Built at Zhdanov Yard, Leningrad between 1963 and 1966. *Sevan* fitted as squadron Flagship in support of Indian Ocean detachments. Variations exist between ships of this class; *Dauriya* has a deckhouse over the aft hold. All have two Vee Cone communications aerials. *Yamal* had her flight deck removed in 1995. The first of class, completed in 1962, was originally *Vytegrales,* but this was later changed to *Kosmonaut Pavel Belyayev* and, with three other ships of this class, converted to Space Support Ships. Four others (*Borovichi* and so on) received a different conversion for the same purpose. The civilian-manned ships together with these naval ships are often incorrectly called 'Vostok' or 'Baskunchak' class. *Apsheron* and *Dauriya* are in the Black Sea, *Sevan* and *Yamal* in the Baltic. Two others transferred to Ukraine in 1996.

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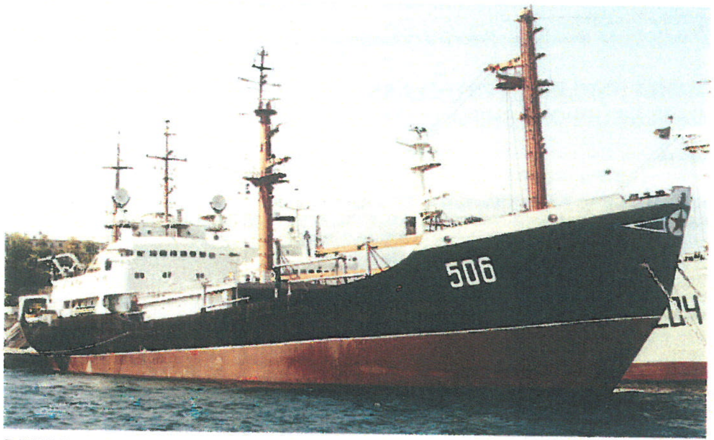
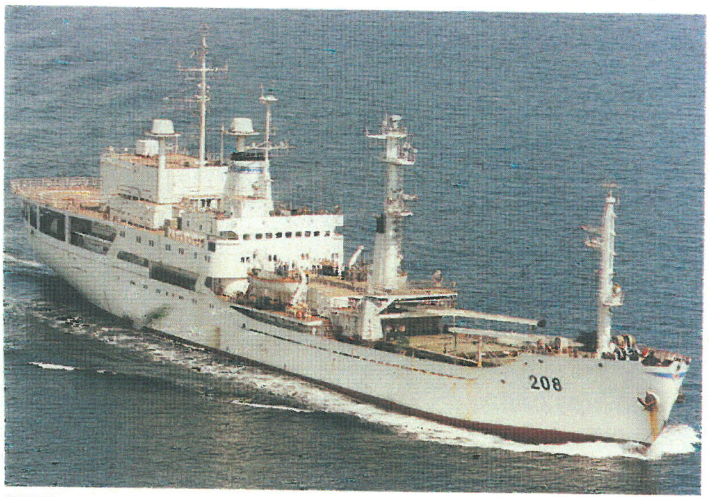


DAURIYA *7/2000, Hartmut Ehlers* / 0105572



SEVAN *6/1998* / 0050059

11 AMUR (PROJECT 304/304M) CLASS (REPAIR SHIPS) (AR)

AMUR I
PM 40, PM 56, PM 64, PM 82, PM 138, PM 140, PM 156
AMUR II
PM 59, PM 69, PM 86, PM 97

Displacement, tons: 5,500 full load
Dimensions, feet (metres): 400.3 × 55.8 × 16.7 *(122 × 17 × 5.1)*
Main machinery: 1 Zgoda 8 TAD-48 diesel; 3,000 hp(m) *(2.2 MW)*; 1 shaft
Speed, knots: 12. **Range, miles:** 13,000 at 8 kt
Complement: 145
Radars: Navigation: Kivach or Palm Frond or Nayada; I-band.

Comment: 'Amur I' class general purpose depot and repair ships completed 1968-83 in Szczecin, Poland. Successors to the 'Oskol' class. Carry two 5 ton cranes and have accommodation for 200 from ships alongside. 'Amur II' class has extra deckhouse forward of the funnel. Built at Szczecin 1983-85. Three Amur IIs are based in the Pacific and one in the North. Three are laid up in the Baltic. PM 9 transferred to Ukraine. PM 56 visited Tartous in 2002.

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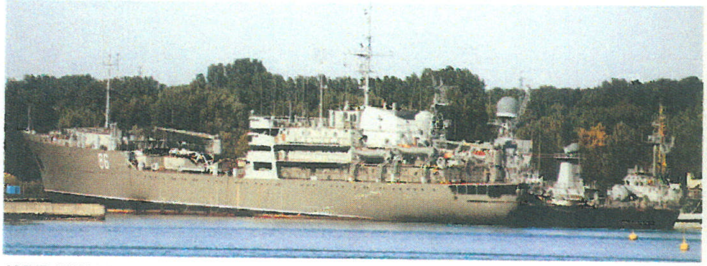
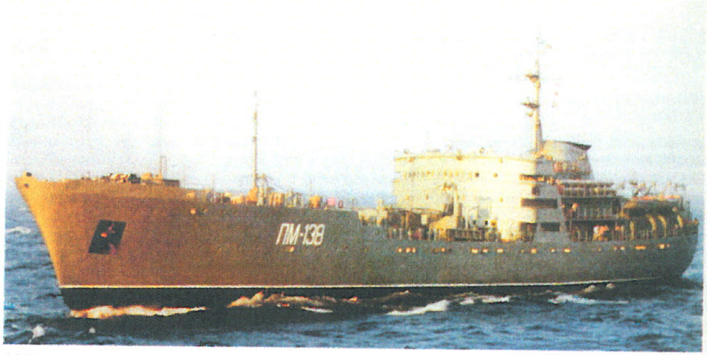


AMUR II PM 86 *9/2000, J Cislak* / 0105571



AMUR I PM 138 *9/2002, Globke Collection* / 0528330

2 DUBNA CLASS (REPLENISHMENT TANKERS) (AOL/AOT)

DUBNA **PECHENGA**

Displacement, tons: 11,500 full load
Dimensions, feet (metres): 426.4 × 65.6 × 23.6 *(130 × 20 × 7.2)*
Main machinery: 1 Russkiy 8DRPH23/230 diesel; 6,000 hp(m) *(4.4 MW)*; 1 shaft
Speed, knots: 16. **Range, miles:** 7,000 at 16 kt
Complement: 70
Cargo capacity: 7,000 tons fuel; 300 tons fresh water; 1,500 tons stores
Radars: Navigation: 2 Nayada; I-band.

Programmes: Completed 1974 at Rauma-Repola, Finland.
Structure: *Dubna* has 1 ton replenishment stations forward. Normally painted in merchant navy colours.
Operational: *Dubna* can refuel on either beam and astern. *Pechenga* has had RAS gear removed. Based in North. One of the class transferred to Ukraine in 1997 and another sold commercially in 1999 in the Pacific.

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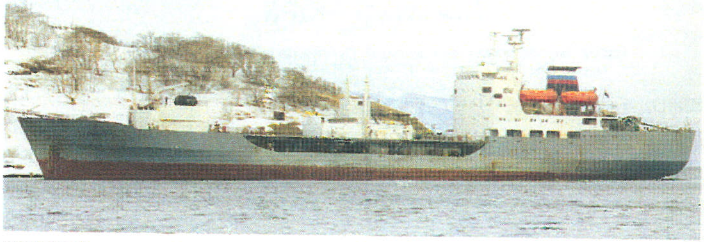
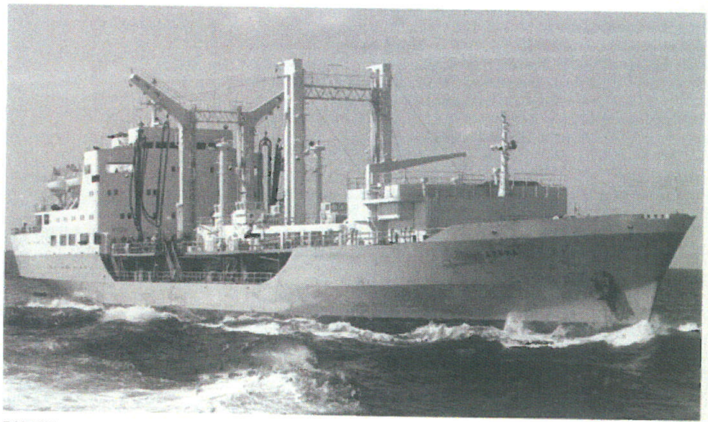


PECHENGA *3/2003*, B Lemachko* / 0573517



DUBNA *7/1996, van Ginderen Collection* / 0019061

5 BORIS CHILIKIN (PROJECT 1559V) CLASS (REPLENISHMENT SHIPS) (AOR)

BORIS BUTOMA **IVAN BUBNOV** **SEGEY OSIPOV** (ex-*Dnestr*) **VLADIMIR KOLECHITSKY** **GENRICH GASANOV**

Displacement, tons: 23,450 full load
Dimensions, feet (metres): 531.5 × 70.2 × 33.8 *(162.1 × 21.4 × 10.3)*
Main machinery: 1 diesel; 9,600 hp(m) *(7 MW)*; 1 shaft
Speed, knots: 17. **Range, miles:** 10,000 at 16 kt
Complement: 75 (without armament)
Cargo capacity: 13,000 tons oil fuel and dieso; 400 tons ammunition; 400 tons spares; 400 tons victualling stores; 500 tons fresh water

Guns: 4—57 mm/80 (2 twin). Most are fitted for but not with the guns.
Radars: Air/surface search/fire control: Strut Curve (fitted for but not with).
Muff Cob (fitted for but not with).
Navigation: 2 Nayada or Palm Frond (plus Don 2 in *V Kolechitsky*); I-band.
IFF: High Pole B.

Programmes: Based on the Veliky Oktyabr merchant ship tanker design. Built at the Baltic Yard, Leningrad; *Vladimir Kolechitsky* completed in 1972, *Osipov* in 1973, *Ivan Bubnov* in 1975, *Genrich Gasanov* in 1977. Last of class *Boris Butoma* completed in 1978.

Structure: This is the only class of purpose-built underway fleet replenishment ships for the supply of both liquids and solids. Although most operate in merchant navy paint schemes, all wear naval ensigns.

Operational: Earlier ships can supply solids on both sides forward. Later ships supply solids to starboard, liquids to port forward. All can supply liquids either side aft and astern. *Osipov* and *Gasanov* are based in the North, *Bubnov* in the Black Sea, *Butoma* and *Kolechitsky* in the Pacific. Most are used for commercial purposes. *Boris Chilikin* transferred to Ukraine in 1997.

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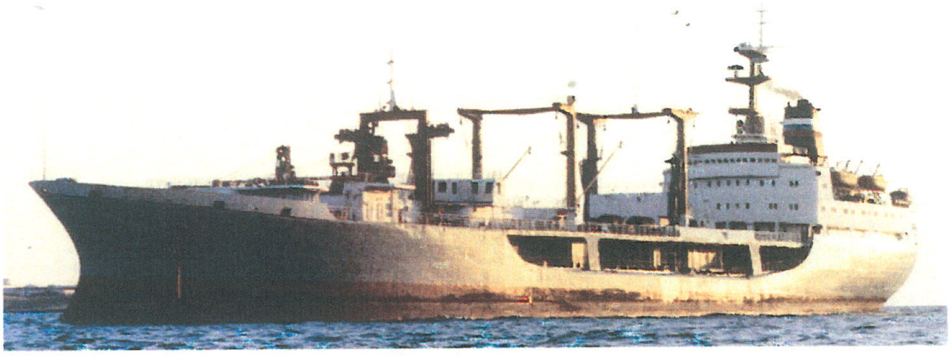
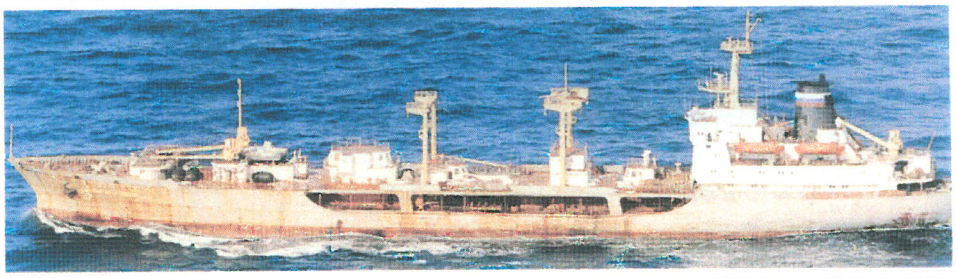


BORIS BUTOMA *8/2000, B Lemachko* / 0126221



VLADIMIR KOLECHITSKY *3/2001, Ships of the World* / 0126357

30 BOLVA (PROJECT 688/688A) CLASS (BARRACKS SHIPS) (YPB)

Displacement, tons: 6,500
Dimensions, feet (metres): 560.9 × 45.9 × 9.8 *(110 × 14 × 3)*
Cargo capacity: 350-400 tons

Comment: A total of 59 built by Valmet Oy, Helsinki between 1960 and 1984. Of the remaining 30 ships, six are Bolva 1, 16 are Bolva 2 and eight are Bolva 3. Used for accommodation of ships' companies during refit and so on. The Bolva 2 and 3 have a helicopter pad. Have accommodation facilities for about 400 people. No means of propulsion but can be steered. In addition there are several other types of Barracks Ships including five ex-'Atrek' class depot ships as well as converted merchant ships and large barges. At least 18 have been scrapped.

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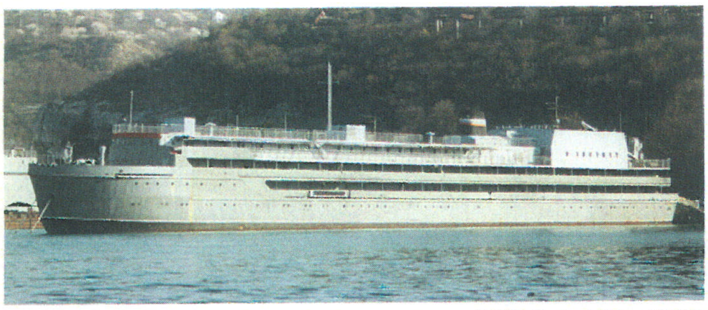

IMATRA (at Sevastopol) *3/2002, Hartmut Ehlers* / 0529803

4 MOD ALTAY CLASS (PROJECT 160) (REPLENISHMENT TANKERS) (AOL)

PRUT **YELNYA** **IZHORA** **KOLA**

Displacement, tons: 7,250 full load
Dimensions, feet (metres): 348 × 51 × 22 *(106.2 × 15.5 × 6.7)*
Main machinery: 1 Burmeister & Wain BM550VTBN110 diesel; 3,200 hp(m) *(2.35 MW)*; 1 shaft
Speed, knots: 14. **Range, miles:** 8,600 at 12 kt
Complement: 60
Cargo capacity: 4,400 tons oil fuel; 200 m³ solids
Radars: Navigation: 2 Don 2 or 2 Spin Trough; I-band.

Comment: Built from 1967-72 by Rauma-Repola, Finland. Modified for alongside replenishment. This class is part of 38 ships, being the third group of Rauma types built in Finland in 1967. *Ilim* and *Yegorlik* transferred to civilian companies in 1996/97. *Prut* and *Kola* in the North, *Yelnya* in the Baltic and *Izhora* in the Pacific.

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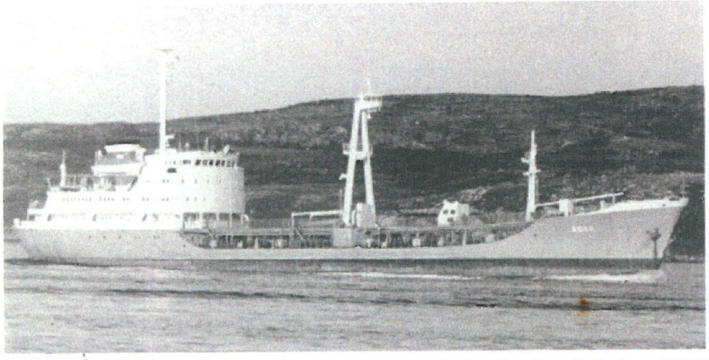

KOLA *1/1997, van Ginderen Collection* / 0019062

2 OLEKMA CLASS (PROJECT 92) (REPLENISHMENT TANKERS) (AORL)

OLEKMA **IMAN**

Displacement, tons: 7,300 full load
Dimensions, feet (metres): 344.5 × 47.9 × 22 *(105.1 × 14.6 × 6.7)*
Main machinery: 1 Burmeister & Wain diesel; 2,900 hp(m) *(2.13 MW)*; 1 shaft
Speed, knots: 14. **Range, miles:** 8,000 at 14 kt
Complement: 40
Cargo capacity: 4,500 tons oil fuel; 180 m³ solids
Radars: Navigation: Don 2 or Nayada and Spin Trough; I-band.

Comment: Built by Rauma-Repola, Finland in 1966. Modified for replenishment with refuelling rig abaft the bridge as well as astern refuelling. *Olekma* based in the Baltic and *Iman* in the Black Sea.

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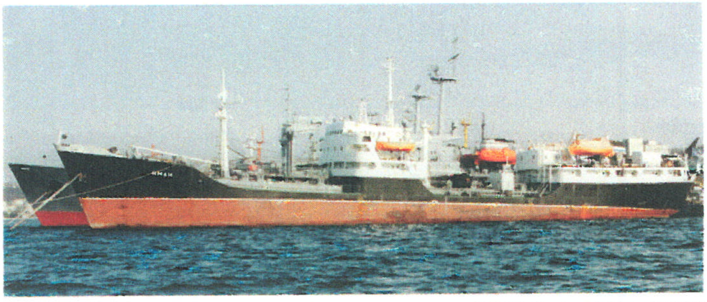

IMAN *3/2002, Hartmut Ehlers* / 0529802

4 UDA CLASS (PROJECT 577D) (REPLENISHMENT TANKERS) (AOL)

LENA **TEREK** **VISHERA** **KOYDA**

Displacement, tons: 5,500 standard; 7,126 full load
Dimensions, feet (metres): 400.3 × 51.8 × 20.3 *(122.1 × 15.8 × 6.2)*
Main machinery: 2 diesels; 9,000 hp(m) *(6.6 MW)*; 2 shafts
Speed, knots: 17. **Range, miles:** 4,000 at 15 kt
Complement: 85
Cargo capacity: 2,900 tons oil fuel; 100 m³ solids
Radars: Navigation: 2 Don 2 or Nayada/Palm Frond; I-band.
IFF: High Pole A.

Comment: Built between 1962 and 1967 at Vyborg Shipyard. All have a beam replenishment capability. Guns removed. *Vishera* in the Pacific, *Terek* in the Northern Fleet, *Koyda* in the Black Sea and *Lena* in the Baltic.

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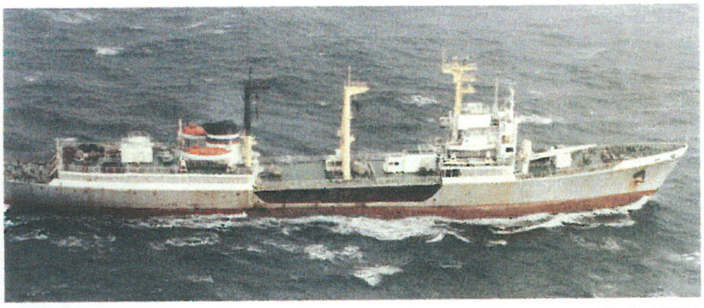


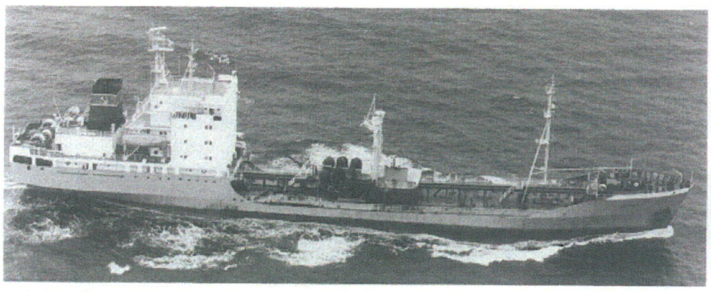
LENA *4/1998* / 0050061

1 KALININGRADNEFT CLASS (SUPPORT TANKER) (AORL)

VYAZMA (ex-*Katun*)

Displacement, tons: 8,600 full load
Dimensions, feet (metres): 380.5 × 56 × 21 *(116 × 17 × 6.5)*
Main machinery: 1 Russkiy Burmeister & Wain 5DKRP50/110-2 diesel; 3,850 hp(m) *(2.83 MW)*; 1 shaft
Speed, knots: 14. **Range, miles:** 5,000 at 14 kt
Complement: 32
Cargo capacity: 5,400 tons oil fuel and other liquids
Radars: Navigation: Okean; I-band.

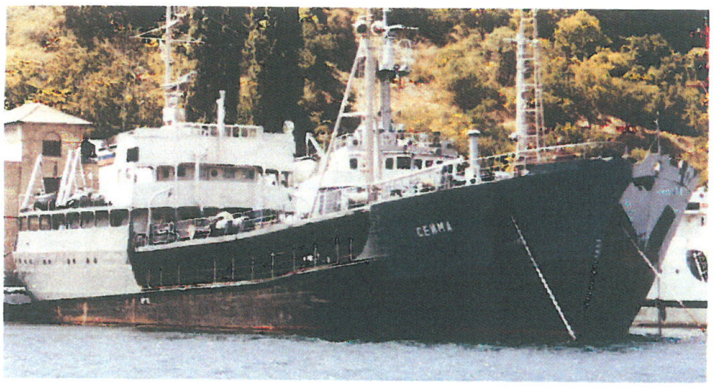
Comment: Built by Rauma-Repola, Finland in 1982. Can refuel astern. At least an additional 20 of this class operate with the fishing fleets. Operational in the Northern Fleet. ***VERIFIED***



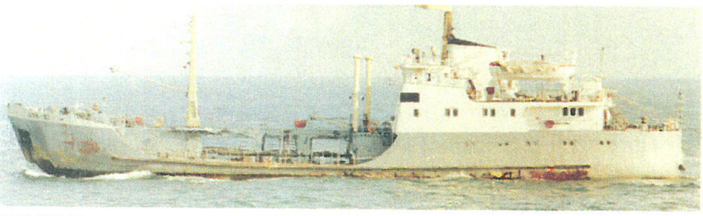
KALININGRADNEFT *11/1991, G Jacobs*

TOPLIVO AND KHOBI SERIES (HARBOUR TANKERS) (AOL)

Comment: There are three Toplivo versions. Toplivo 1 (Project 5), total of 36 built in Poland, are of 420 tons full load and 34.4 m long. Toplivo 2 (Project 1844), some of which were built in Egypt but the majority in the USSR, are of 1,200 tons full load and 53 m long. Toplivo 3, built in the USSR, are of 1,300 tons full load and 52.7 m long with a very different appearance from Toplivo 2. Total of 27 Toplivo 2 and 3 built. About 20 'Toplivo' class remain in service although numbers are uncertain. Four of the 'Khobi' class (Project 437M) are also reported as still being in service. These are 1,500 ton tankers capable of carrying 550 tons of fuel. Three *(Cheremshan, Shacha* and *Sysola)* are in the North, one (*Moksha*) in the Pacific and three *(Lovat, Sosha* and *Orsha)* in the Baltic. Two others are laid up in the Black Sea. These ships are used in many bases for the transport of all forms of liquids. ***UPDATED***



KHOBI *7/2000, Hartmut Ehlers* / 0105574



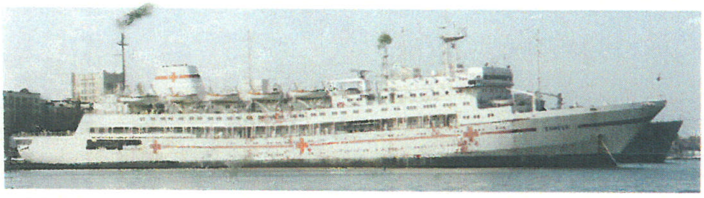
TOPLIVO III *6/2003*, B Lemachko* / 0573516

3 OB (PROJECT 320) CLASS (HOSPITAL SHIPS) (AHH)

YENISEI **SVIR** **IRTYSH**

Displacement, tons: 11,570 full load
Dimensions, feet (metres): 499.7 × 63.6 × 20.5 *(152.3 × 19.4 × 6.3)*
Main machinery: 2 Zgoda-Sulzer 12ZV40/48; 15,600 hp(m) *(11.47 MW)* sustained; 2 shafts; cp props
Speed, knots: 19. **Range, miles:** 10,000 at 18 kt
Complement: 124 plus 83 medical staff
Radars: Navigation: 3 Don 2 or 3 Nayada; I-band.
IFF: High Pole A.
Helicopters: 1 Ka-25 Hormone C.

Comment: Built at Szczecin, Poland. *Yenisei* completed 1981 and is based in the Black Sea. *Svir* completed in early 1989 and transferred to the Northern Fleet in September 1989. *Irtysh* completed in June 1990, was stationed in the Gulf in 1990-91 and is now based in the Pacific. A fourth of class is derelict and a fifth was cancelled. Have 100 beds and seven operating theatres. The first purpose-built hospital ships in the Navy, a programme which may have been prompted by the use of several merchant ships off Angola for Cuban casualties in the 'war of liberation.' NBC pressurised citadel. Ship stabilisation system. Decompression chamber. All are in use, mostly as alongside medical facilities. ***VERIFIED***



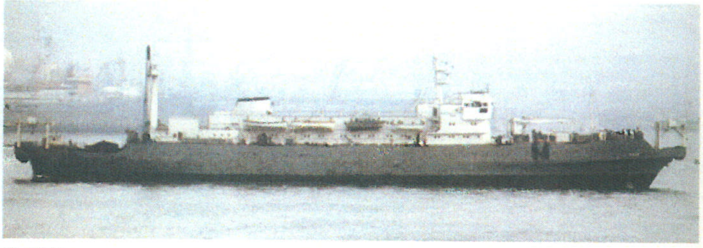
YENISEI *3/2002, Hartmut Ehlers* / 0529801

4 KLASMA (PROJECT 1274) CLASS (CABLE SHIPS) (ARC)

DONETS **INGURI** **YANA** **ZEYA**

Displacement, tons: 6,000 standard; 6,900 full load
Measurement, tons: 3,400 dwt; 5,786 gross
Dimensions, feet (metres): 427.8 × 52.5 × 19 *(130.5 × 16 × 5.8)*
Main machinery: Diesel-electric; 5 Wärtsilä Sulzer 624TS diesel generators (4 in *Ingul* and *Yana*); 5,000 hp(m) *(3.68 MW)*; 2 motors; 2,150 hp(m) *(1.58 MW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 12,000 at 14 kt
Complement: 118
Radars: Navigation: Spin Trough and Nayada; I-band.

Comment: *Yana* built by Wärtsilä, Helsingforsvarvet, Finland in 1962; *Donets* at the Wärtsilä, Åbovarvet in 1968-69; *Zeya* in 1970. *Donets* and *Zeya* are of slightly modified design. *Inguri* completed in 1978. All are ice strengthened and can carry 1,650 miles of cable. *Yana* is distinguished by gantry right aft. *Donets* is in the Baltic, and the other three are in the North. All are active and can be leased for commercial use. One to Ukraine in 1997. ***VERIFIED***



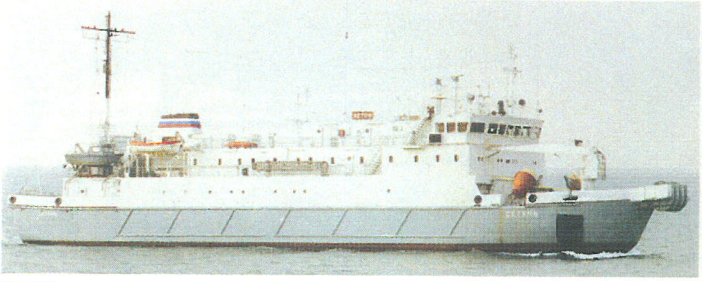
KLASMA *3/1992* / 0081709

4 EMBA (PROJECT 1172/1175) CLASS (CABLE SHIPS) (ARC)

SETUN (I) **NEPRYADAVA** (I) **KEM** (II) **BIRIUSA** (II)

Displacement, tons: 2,050 full load (Group I); 2,400 (Group II)
Dimensions, feet (metres): 249 × 41.3 × 9.8 *(75.9 × 12.6 × 3)* (Group I)
282.4 × 41.3 × 9.9 *(86.1 × 12.6 × 3)* (Group II)
Main machinery: Diesel-electric; 2 Wärtsilä Vasa 6R22 diesel alternators; 2,350 kVA 60 Hz; 2 motors; 1,360 hp(m) *(1 MW)*; 2 shafts (Group I)
2 Wärtsilä Vasa 8R22 diesel alternators; 3,090 kVA 60 Hz; 2 motors; 2,180 hp(m) *(1.6 MW)*; 2 shafts (Group II)
The 2 turnable propulsion units can be inclined to the ship's path giving, with a bow thruster, improved turning movement
Speed, knots: 11
Complement: 40
Radars: Navigation: Kivach and Don 2; I-band.

Comment: Both Emba Is built in 1981. Designed for shallow water cable-laying. Carry 380 tons of cable. Order placed with Wärtsilä in January 1985 for two larger (Group II) ships; *Kem* completed on 23 October 1986. Can lay about 600 tons of cable. Designed for use off Vladivostok but also capable of operations in inland waterways. *Setun* is based in the Black Sea, *Nepryadava* in the Baltic, and *Kem* and *Biriusa* are in the Pacific. ***UPDATED***



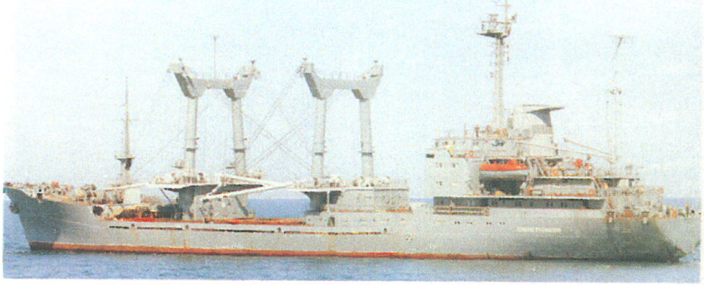
SETUN *6/2003*, B Lemachko* / 0573515

4 MIKHAIL RUDNITSKY (PROJECT 05360/1) CLASS (SALVAGE AND MOORING VESSELS) (ARS)

MIKHAIL RUDNITSKY **GEORGY KOZMIN** **GEORGY TITOV** **SAYANY**

Displacement, tons: 10,700 full load
Dimensions, feet (metres): 427.4 × 56.7 × 23.9 *(130.3 × 17.3 × 7.3)*
Main machinery: 1 S5DKRN62/140-3 diesel; 6,100 hp(m) *(4.48 MW)*; 1 shaft
Speed, knots: 16. **Range, miles:** 12,000 at 15.5 kt
Complement: 72 (10 officers)
Radars: Navigation: Palm Frond; Nayada; I-band.
Sonars: MG 89 *(Sayany)*.

Comment: Built at Vyborg, based on 'Moskva Pionier' class merchant ship hull. First completed 1979, second in 1980, third in 1983 and fourth in 1984. Fly flag of Salvage and Rescue Service. Have two 40 ton and one 20 ton lift with cable fairleads forward and aft. This lift capability is adequate for handling small submersibles, one of which is carried in the centre hold. *Sayany* is also described as a research ship and has a high-frequency sonar. *Rudnitsky* and mini-submarine AS 26 took part in the *Kursk* rescue attempts in August 2000. *Rudnitsky* and *Titov* in the Northern Fleet and the other two in the Pacific. ***UPDATED***



MIKHAIL RUDNITSKY *6/2003*, B Lemachko* / 0573514

8 KASHTAN (PROJECT 141) CLASS (BUOY TENDERS) (ABU/AGL/ARS)

ALEXANDR PUSHKIN (ex-*KIL 926*)
KIL 927
KIL 143
KIL 158
KIL 164
SS 750 (ex-*KIL 140*)
KIL 498
KIL 168

Displacement, tons: 4,600 full load
Dimensions, feet (metres): 313.3 × 56.4 × 16.4 *(95.5 × 17.2 × 5)*
Main machinery: 4 Wärtsilä diesels; 29,000 hp(m) *(2.31 MW)*; 2 shafts
Speed, knots: 13.5
Complement: 51 plus 20 spare berths
Radars: Navigation: 2 Nayada; I-band.

Comment: Enlarged 'Sura' class built at the Neptun Shipyard, Rostock. Ordered 29 August 1986; *Alexandr Pushkin* handed over in June 1988 and is classified as an AGL in the Baltic; *927* to the Pacific in July 1989; *143* to the North in July 1989; *158* to the Black Sea in November 1989; *164* to the North in January 1990; *498* to the Pacific in November 1990 and *168* to the Pacific in mid-1991. Lifting capacity: one 130 ton lifting frame, one 100 ton derrick, one 12.5 ton crane and one 10 ton derrick. All are civilian operated except *SS 750* in the Baltic which is used to support submersibles AS 22 and AS 26. *158* deployed to Tartous for several months in late 2002.
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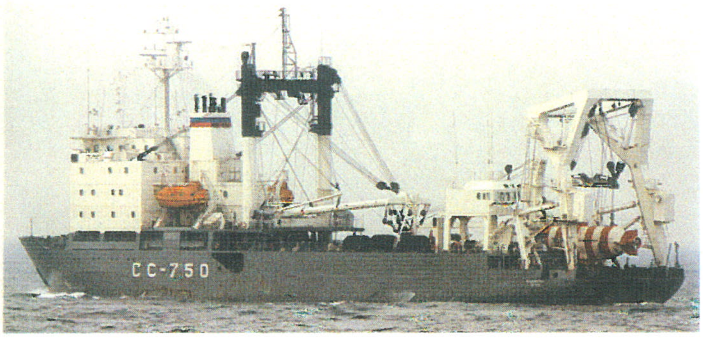


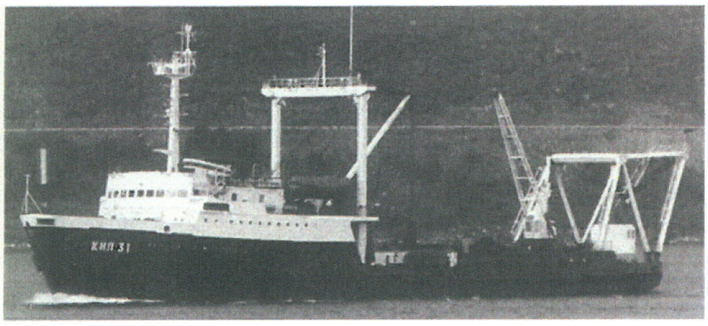
SS 750 (with mini-sub AS 22) *6/2001* / 0126316

4 SURA (PROJECT 145) CLASS (BUOY TENDERS) (ABU)

KIL 22 **KIL 27** **KIL 29** **KIL 31**

Displacement, tons: 2,370 standard; 3,150 full load
Dimensions, feet (metres): 285.4 × 48.6 × 16.4 *(87 × 14.8 × 5)*
Main machinery: Diesel-electric; 4 diesel generators; 2 motors; 2,240 hp(m) *(1.65 MW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 2,000 at 11 kt
Complement: 40
Cargo capacity: 900 tons cargo; 300 tons fuel for transfer
Radars: Navigation: 2 Don 2; I-band.

Comment: Heavy lift ships built as mooring and buoy tenders at Rostock in East Germany between 1965 and 1976. Lifting capacity: one 65 ton derrick and one 65 ton stern cage. Have been seen to carry 12 m DSRVs. *KIL 27* is in the Pacific, *KIL 29* in the Baltic and *KIL 22* and *KIL 31* in the North. Four others are laid up. One to Ukraine in 1997.
UPDATED



KIL 31 *4/1996, van Ginderen Collection*

1 ELBRUS (OSIMOL) (PROJECT 537) CLASS (SUBMARINE RESCUE SHIP) (ASRH)

ALAGEZ

Displacement, tons: 19,000 standard; 22,500 full load
Dimensions, feet (metres): 575.8 × 80.4 × 27.9 *(175.5 × 24.5 × 8.5)*
Main machinery: Diesel-electric; 4 diesel generators; 2 motors; 20,000 hp(m) *(14.7 MW)*; 2 shafts
Speed, knots: 17. **Range, miles:** 14,500 at 15 kt
Complement: 420
Guns: 4—30 mm/65 (2 twin).
Radars: Navigation: 2 Nayada and 2 Palm Frond; I-band.
Helicopters: 1 Ka-25 Hormone C.

Comment: Very large submarine rescue and salvage ship with icebreaking capability, possibly in view of under-ice capability of some SSBNs. Built at Nikolayev, and completed in 1982. Can carry two submersibles in store abaft the funnel which are launched from telescopic gantries. Based in the Pacific. Repairs of the 'Nepa' class ASR *Karpaty* based in the Baltic have been discontinued.
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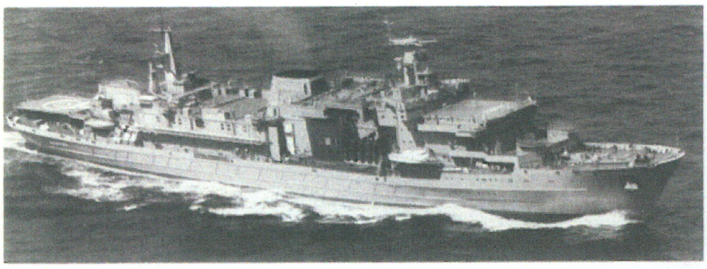

ALAGEZ *9/1991, G Jacobs*

24 SHELON I/II (PROJECT 1388/1388M) CLASS (YPT/YAG)

TL and KRH series

Displacement, tons: 270 full load
Dimensions, feet (metres): 150.9 × 19.7 × 6.6 *(46 × 6 × 2)*
Main machinery: 2 diesels; 8,976 hp(m) *(6.6 MW)*; 2 shafts
Speed, knots: 26. **Range, miles:** 1,500 at 10 kt
Complement: 14
Radars: Navigation: Spin Trough or Kivach; I-band.

Comment: Type I built 1978-84. Built-in weapon recovery ramp aft. Type II built 1985-87. Type IIs can be used as environmental monitoring ships. One is an Admirals' yacht in the Baltic, and others are used as personnel transports.
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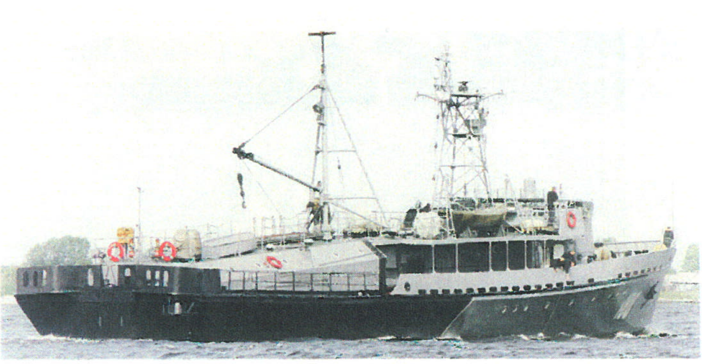
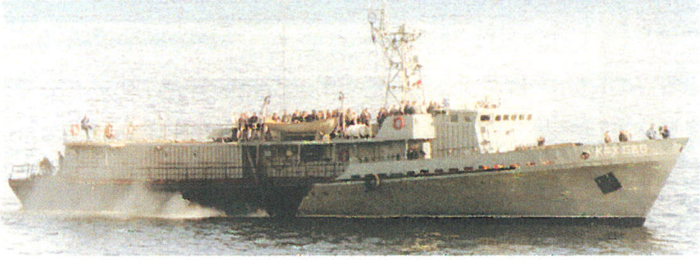


TL 180 *7/2001, B Lemachko* / 0528311



SHELON II *6/2003*, B Lemachko* / 0573513

FLAMINGO (TANYA) (PROJECT 1415) CLASS (TENDERS) (YDT)

Displacement, tons: 42 full load
Dimensions, feet (metres): 72.8 × 12.8 × 4.6 *(22.2 × 3.9 × 1.4)*
Main machinery: 1 Type 3-D-12 diesel; 300 hp(m) *(220 kW)* sustained; 1 shaft
Speed, knots: 12
Complement: 8

Comment: Successor to Nyryat II. There are some 27 with RVK numbers (diving tenders). There are also about 20 (PSKA numbers) assigned to the Border Guard for harbour patrol duties. These are known as the 'Kulik' class. Other craft have BSK, RK (workboats) PRDKA (counterswimmer cutter) and BGK (inshore survey) numbers.
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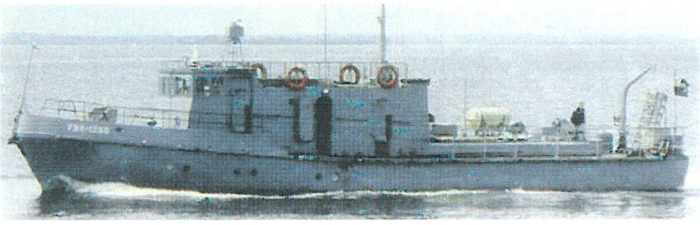

FLAMINGO (Diving Tender) *6/2003*, A Sheldon-Duplaix* / 0573512

POLUCHAT I, II and III CLASSES (PROJECT 368) (YPT)

TL series

Displacement, tons: 70 standard; 100 full load
Dimensions, feet (metres): 97.1 × 19 × 4.8 *(29.6 × 5.8 × 1.5)*
Main machinery: 2 M 50 diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 1,500 at 10 kt
Complement: 15
Guns: 2—14.5 mm (twin) MGs (in some).
Radars: Navigation: Spin Trough; I-band.

Comment: Employed as specialised or dual-purpose torpedo recovery vessels and/or patrol boats. They have a stern slipway. Several exported as patrol craft. Some used by the Border Guard. Transfers: Algeria, Angola, Congo (three), Ethiopia (one), Guinea-Bissau, India, Indonesia (three), Iraq (two), Mozambique, Somalia (six), Syria, Tanzania, Vietnam (five), North Yemen (two), South Yemen. About 13 remain in service.
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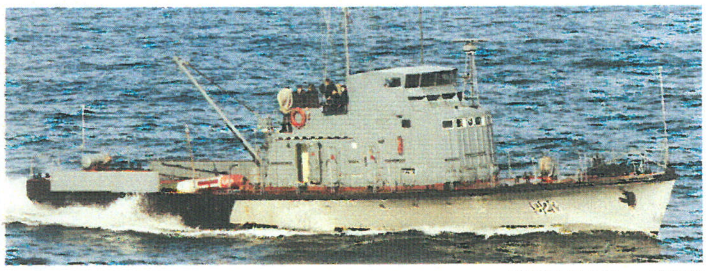

POLUCHAT I *11/1991, MoD Bonn* / 0081713

PO 2 (PROJECT 501) and NYRYAT 2 (PROJECT 1896) CLASSES (TENDERS) (YDT)

Displacement, tons: 56 full load
Dimensions, feet (metres): 70.5 × 11.5 × 3.3 *(21.5 × 3.5 × 1)*
Main machinery: 1 Type 3-D-12 diesel; 300 hp(m) *(220 kW)* sustained; 1 shaft
Speed, knots: 12
Complement: 8
Guns: Some carry 1—12.7 mm MG on the forecastle.

Comment: This 1950s design of hull and machinery has been used for a wide and diverse number of adaptations. Steel hull. Nyryat 2 have the same characteristics but are used as diving tenders (RVK), inshore survey craft (MGK) and workboats (RK).

Transfers: Albania, Bulgaria, Cuba, Guinea, Iraq. Many deleted.

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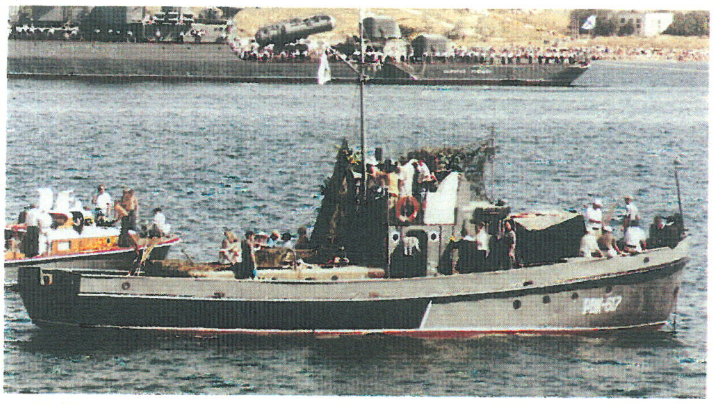

NYRYAT 2 *7/2000, Hartmut Ehlers* / 0105577

NYRYAT I (PROJECT 522) CLASS (TENDERS) (YDT)

Displacement, tons: 120 full load
Dimensions, feet (metres): 93 × 18 × 5.5 *(28.4 × 5.5 × 1.7)*
Main machinery: 1 diesel; 450 hp(m) *(331 kW)*; 1 shaft
Speed, knots: 12.5. **Range, miles:** 1,500 at 10 kt
Complement: 15
Guns: 1—12.7 mm MG (in some).

Comment: Built from 1955. Can operate as patrol craft or diving tenders with recompression chamber. Similar hull and propulsion used for inshore survey craft. Some have BGK, VM or GBP (survey craft) numbers.

Transfers: Albania, Algeria, Cuba, Egypt, Iraq, North Yemen. Many deleted.

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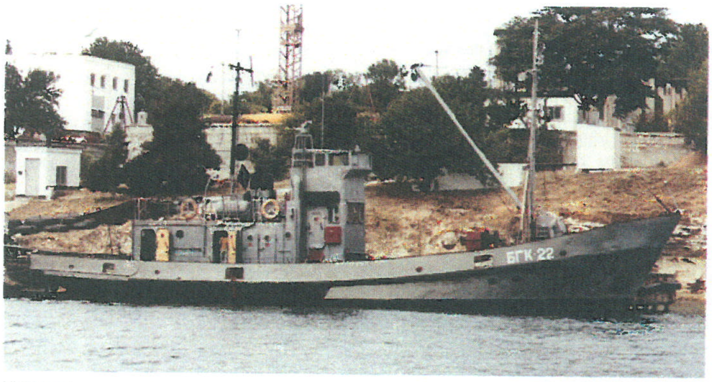

NYRYAT I *7/2000, Hartmut Ehlers* / 0105578

16 SK 620 CLASS (DRAKON) (TENDERS) (YH/YFL)

MK 391
MK 1303
MK 1407
MK 1408
MK 1409
PSK 382
PSK 405
PSK 673
PSK 1411
PSK 1518
SN 109
SN 126
SN 128
SN 401
SN 1318
SN 1520

Displacement, tons: 236 full load
Dimensions, feet (metres): 108.3 × 24.3 × 6.9 *(33 × 7.4 × 2.1)*
Main machinery: 2 56ANM30-H12 diesels; 620 hp(m) *(456 kW)* sustained; 2 shafts
Speed, knots: 12. **Range, miles:** 1,000 at 12 kt
Complement: 14 plus 3 spare

Comment: Built at Wisla Shipyard, Poland as a smaller version of the 'Petrushka' class training ship. PSK series serve as harbour ferries. Mostly used as hospital tenders capable of carrying 15 patients.

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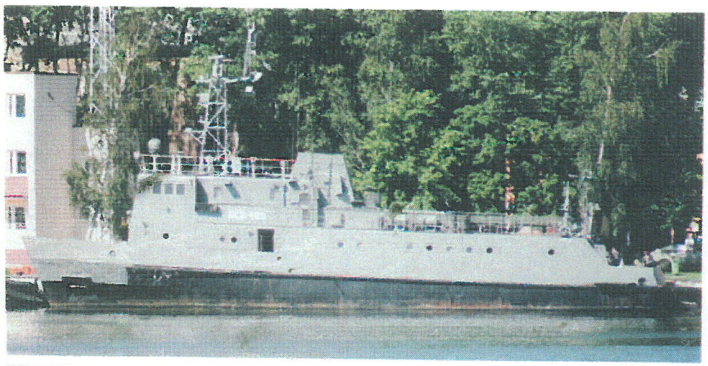

PSK 405 *7/2001, J Ciślak* / 0528310

29 YELVA (KRAB) (PROJECT 535M) CLASS (DIVING TENDERS) (YDT)

VM 20
VM 72
VM 143
VM 146
VM 153-154
VM 250
VM 263
VM 266
VM 268
VM 270
VM 277
VM 409
VM 413-416
VM 420
VM 425
VM 429
VM 725
VM 807
VM 809
VM 907-910
VM 915
VM 919

Displacement, tons: 295 full load
Dimensions, feet (metres): 134.2 × 26.2 × 6.6 *(40.9 × 8 × 2)*
Main machinery: 2 Type 3-D-12A diesels; 630 hp(m) *(463 kW)* sustained; 2 shafts
Speed, knots: 12.5. **Range, miles:** 1,870 at 12 kt
Complement: 30
Radars: Navigation: Spin Trough; I-band.

Comment: Diving tenders built 1971-83. Carry a 1 ton crane and diving bell. Some have submersible recompression chamber. Ice strengthened. One to Cuba 1973, one to Libya 1977. Some have probably been decommissioned.

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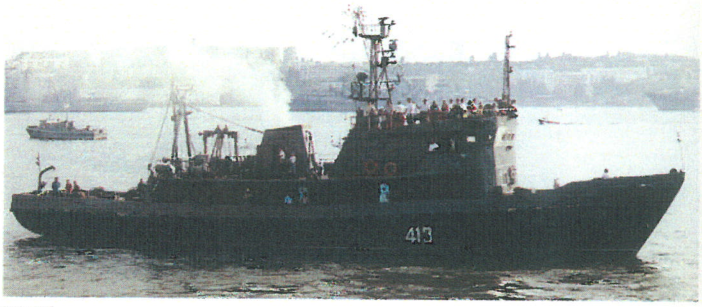


VM 413 *7/2000, Hartmut Ehlers* / 0105580

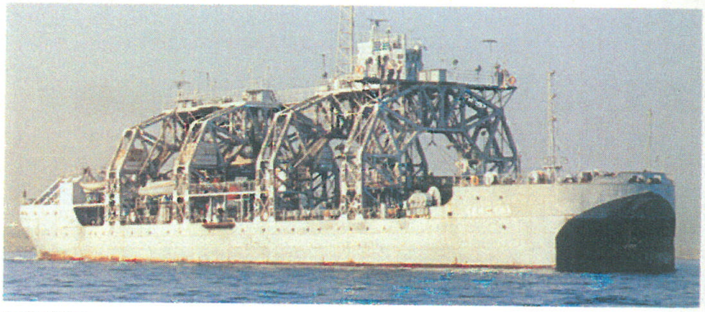
1 SALVAGE LIFTING SHIP (YS)

Name	*Builders*	*Launched*	*Commissioned*
KOMMUNA (ex-*Volkhov*)	De Schelde, Vlissingen	30 Nov 1913	27 July 1915

Displacement, tons: 2,450 full load
Dimensions, feet (metres): 315.0 × 66.9 × 15.4 *(96.0 × 20.4 × 4.7)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 10. **Range, miles:** 1,700 at 6 kt
Complement: 250
Radars: Navigation: I-band.

Comment: Catamaran-hulled vessel fitted with four lifting rigs to enable sunken submarines to be lifted between the hulls. Laid down in 1912, the vessel was thought to have been decommissioned in 1978 but returned to service after a refit from 1980-84. Now based at Sevastopol to support the operation of submersibles.

NEW ENTRY



KOMMUNA *3/2003*, B Lemachko* / 0570910

27 POZHARNY I (PROJECT 364) CLASS (FIREFIGHTING CRAFT) (YTR)

PZHK 3
PZHK 41-47
PZHK 66
PZHK86
PZHK 5
PZHK 49
PZHK 68
PZHK 17
PZHK 53-55
PZHK 79
PZHK 30-32
PZHK 59
PZHK 82
PZHK36-37
PZHK 64
PZHK84

Displacement, tons: 180 full load
Dimensions, feet (metres): 114.5 × 20 × 6 *(34.9 × 6.1 × 1.8)*
Main machinery: 2 Type M 50 diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 12. **Range:** 250 at 12 kt
Complement: 26
Guns: 4—12.7 mm (2 twin) MGs (in some).

Comment: Total of 84 built from mid-1950s to mid-1960s. Harbour fire boats but can be used for patrol duties. One transferred to Iraq (now deleted) and two to Ukraine.

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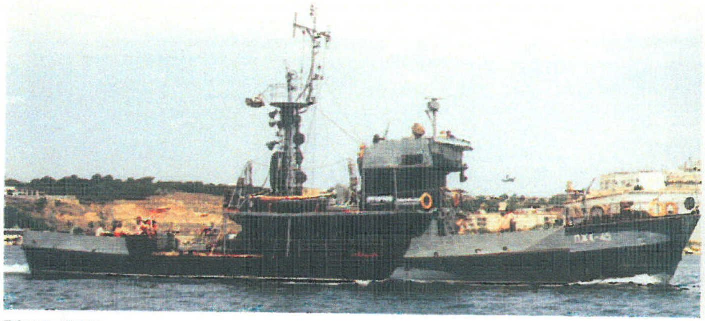

POZHARNY I *8/2000, B Lemachko* / 0126224

16 IVA (MORKOV) (PROJECT 1461.3) CLASS (YTR)

PZHK 415 **PZHK 417** **PZHK 638** **PZHK 900** **PZHK 1296** **PZHK 1378**
PZHK 1514-1515 **PZHK 1544-1547** **PZHK 1560** **PZHK 1580** **PZHK 1859** **PZHK 2055**

Displacement, tons: 320 full load
Dimensions, feet (metres): 119.8 × 25.6 × 7.2 *(36.5 × 7.8 × 2.2)*
Main machinery: 2 diesels; 1,040 hp(m) *(764 kW)*; 2 shafts
Speed, knots: 12.5. **Range:** 250 at 12 kt
Complement: 20

Comment: Carry four water monitors. Completed in 1984-86 at Rybinsk. Can be used for patrol/towage. Some are under civilian control.

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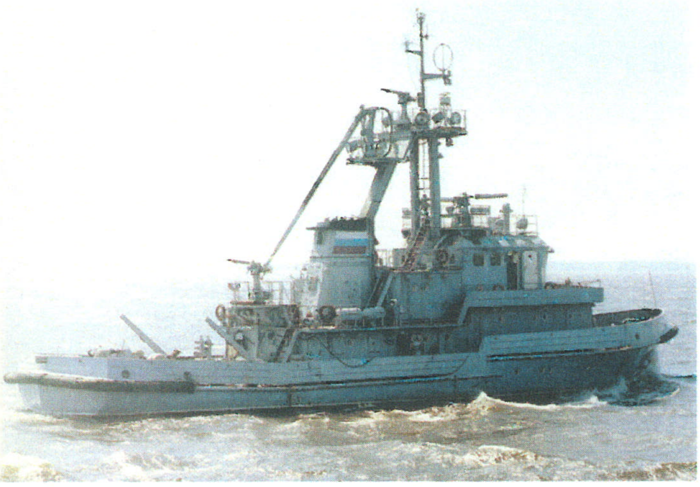

IVA *6/2001, B Lemachko* / 0126223

23 PELYM (PROJECT 1799) CLASS (DEGAUSSING SHIPS) (YDG)

SR 26	**SR 180**	**SR 218**	**SR 241**	**SR 334**	**SR 407**
SR 77	**SR 188**	**SR 220**	**SR 276**	**SR 344**	**SR 409**
SR 111	**SR 203**	**SR 222**	**SR 280**	**SR 370**	**SR 455**
SR 179	**SR 215**	**SR 233**	**SR 281**	**SR 373**	

Displacement, tons: 1,370 full load
Dimensions, feet (metres): 214.8 × 38 × 11.2 *(65.5 × 11.6 × 3.4)*
Main machinery: 1 diesel; 1,536 hp(m) *(1.13 MW)*; 1 shaft
Speed, knots: 14. **Range, miles:** 1,000 at 13 kt
Complement: 70
Radars: Navigation: Don 2; I-band.

Comment: Built from 1970 to 1987 at Khabarovsk and Gorokhovets. Earlier ships have stump mast on funnel, later ships a tripod main mast and a platform deck extending to the stern. Type name is *sudno razmagnichivanya* meaning degaussing ship. One to Cuba 1982. Several in reserve.

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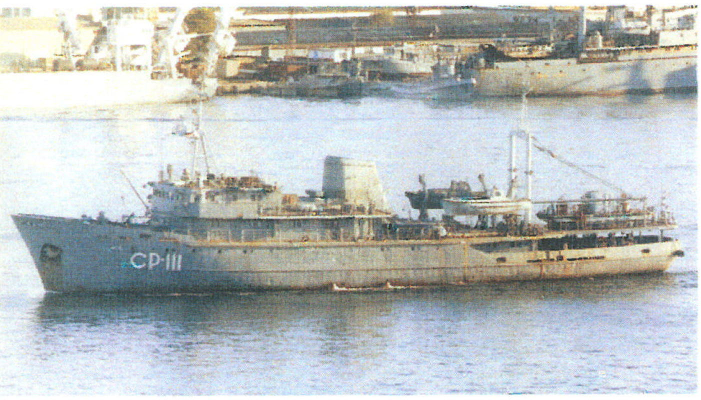

SR 111 *3/2004*, B Lemachko* / 0576441

HARBOUR CRAFT (YP)

Comment: There are numerous types of harbour launches, training cutters and trials vessels in all of the major Fleet bases. Class names include Nachimovec (Project 286), Bryza (Project 722), Yaroslavec (Project 376), Admiralec (Project 371), Krym, Albatros, Amurec and Saigak. Some used by Border Guard.

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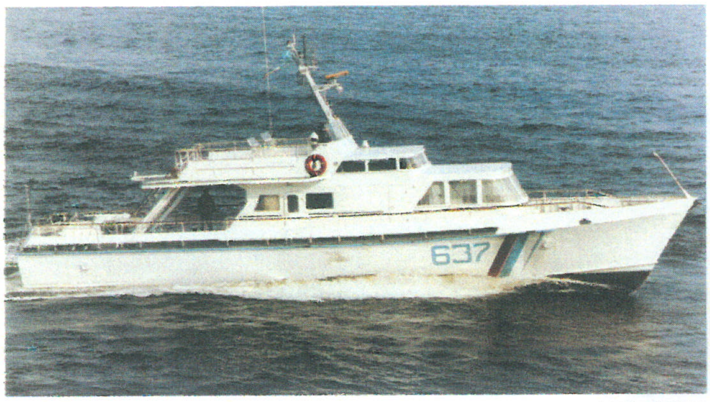

ALBATROS *4/1997* / 0019070

15 BEREZA (PROJECT 130) CLASS (DEGAUSSING SHIPS) (YDG)

North	Baltic	Black	Caspian
SR 74	**SR 28**	**SR 541**	**SR 933**
SR 216	**SR 120**	**SR 939**	
SR 478	**SR 245**		
SR 548	**SR 479**		
SR 569	**SR 570**		
SR 938	**SR 936**		

Displacement, tons: 1,850 standard; 2,051 full load
Dimensions, feet (metres): 228 × 45.3 × 13.1 *(69.5 × 13.8 × 4)*
Main machinery: 2 Zgoda-Sulzer 8AL25/30 diesels; 2,938 hp(m) *(2.16 MW)* sustained; 2 shafts; cp props
Speed, knots: 13. **Range, miles:** 1,000 at 13 kt
Complement: 48
Radars: Navigation: Kivach; I-band.

Comment: First completed at Northern Shipyard, Gdansk 1984-1991. One transferred to Bulgaria in 1988. Have NBC citadels and three laboratories. Several in reserve. One to Ukraine in 1997. SR 938 converted to a logistic ship for service in the Polish Navy.

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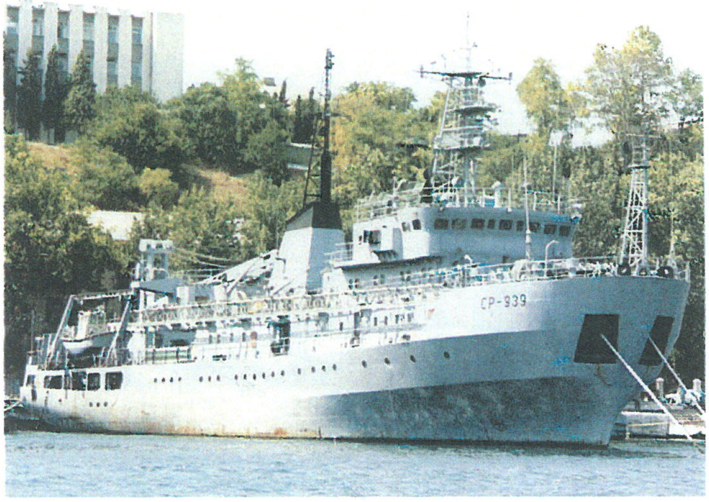

SR 939 *7/2000, Hartmut Ehlers* / 0105581

ICEBREAKERS

Notes: Only military icebreakers are shown in this section. Other icebreakers come under civilian management and are now used predominantly for commercial purposes. Civilian ships include the nuclear powered *Taymyr, Vaygach, Arktika, Rossiya, S Soyuz, Yamal,* all of which are operated by the Murmansk Shipping Company. Diesel powered ships include *A Makarov, Krasin, K Sorokin, K Nikolayev, K Dranitsyn* and *K Khlebnikov*. The growing demand for oil tanker shipments in the Arctic region means that there is a potential shortage of icebreakers. This may be met by completing *50 Let Pobeda*, a nuclear-powered vessel which has lain unfinished at Baltic Shipyard, St Petersburg since 1989. Construction may be completed by 2005 at which stage *Arktika, Rossiya* and *Taymyr* will require life-extension refits.

3 DOBRYNYA NIKITICH CLASS (AGB)

IVAN KRUZENSHTERN (ex-*Ledokol 6*) **VLADIMIR KAVRAYSKY** **SADKO**

Displacement, tons: 2,995 full load
Measurement, tons: 2,254 gross; 1,118 dwt; 50 net
Dimensions, feet (metres): 222.1 × 59.4 × 20 *(67.7 × 18.1 × 6.1)*
Main machinery: Diesel-electric; 3 Type 13-D-100 or 3 Wärtsilä 6L 26 *(Kruzenshtern)* diesel generators; 3 motors; 5,400 hp(m) *(4 MW)*; 3 shafts (1 fwd, 2 aft)
Speed, knots: 14.5. **Range, miles:** 5,500 at 12 kt
Complement: 45
Guns: 2—57 mm/70 (twin). 2—37 mm/63.
Radars: Navigation: 2 Don 2; I-band.

Comment: Built at Admiralty Yard, Leningrad between 1960 and 1971. *Kavraysky* is in the Northern Fleet. *Sadko* and *Kruzenshtern,* which was re-engined in 1997, are in the Pacific. Fourteen others of the class are non-naval.

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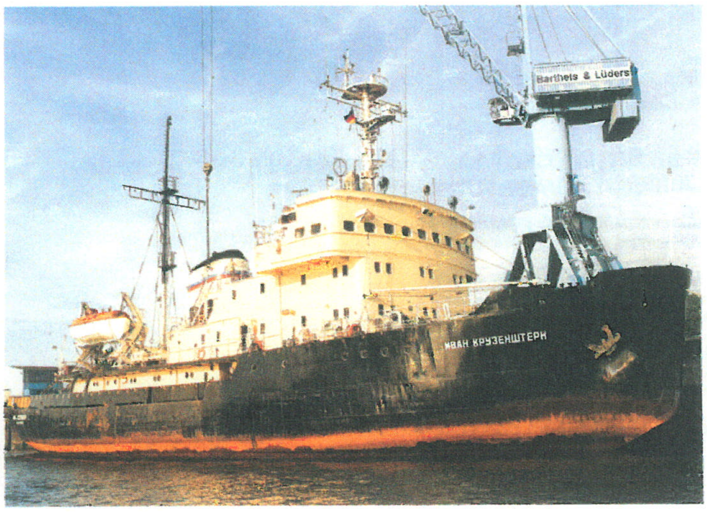

IVAN KRUZENSHTERN *9/1997, Harald Carstens* / 0019071

TUGS

Notes: (1) SB means *Spasatelny Buksir* or Salvage Tug. MB means *Morskoy Buksir* or Seagoing Tug.
(2) One 'Prut' class ARS is reported as still active in the Black Sea.
(3) Two 'Baklazhan' (Project 5757) class tugs are owned by a civilian salvage company.

3 INGUL (PROJECT 1453) CLASS (SALVAGE TUGS) (ATS)

PAMIR **MASHUK** **ALTAY** (ex-*Karabakh*)

Displacement, tons: 4,050 full load
Dimensions, feet (metres): 304.4 × 50.5 × 19 *(92.8 × 15.4 × 5.8)*
Main machinery: 2 Type 58-D-4R diesels; 6,000 hp(m) *(4.4 MW)*; 2 shafts; cp props
Speed, knots: 19. **Range, miles:** 9,000 at 19 kt
Complement: 71 plus salvage party of 18
Radars: Navigation: 2 Palm Frond; I-band.
IFF: High Pole. Square Head.

Comment: Built at Admiralty Yard, Leningrad in 1975-84. NATO class name the same as one of the 'Klasma' class cable-ships. Naval-manned arctic salvage and rescue tugs. Two more, *Yaguar* (Murmansk) and *Bars* (Vladivostok), operate with the merchant fleet. Carry salvage pumps, diving and firefighting gear as well as a high-line for transfer of personnel. Fitted for guns but these are not carried. *Pamir* and *Altay* in the North, *Mashuk* in the Pacific.

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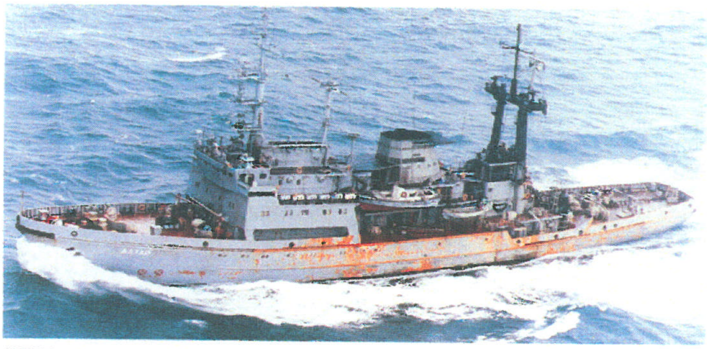

ALTAY *4/1997* / 0019072

3 SLIVA (PROJECT 712) CLASS (SALVAGE TUGS) (ATS)

SB 406 **PARADOKS** SB 921 **SHAKHTER** SB 922

Displacement, tons: 3,050 full load
Dimensions, feet (metres): 227 × 50.5 × 16.7 *(69.2 × 15.4 × 5.1)*
Main machinery: 2 Russkiy SEMT-Pielstick 6 PC2.5 L 400 diesels; 7,020 hp(m) *(5.2 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 16. **Range:** 6,000 at 16 kt
Complement: 43 plus 10 salvage party
Radars: Navigation: 2 Nayada; I-band.

Comment: Built at Rauma-Repola, Finland. Based on Goryn design. *SB 406* completed 20 February 1984. Second pair ordered 1984 *SB 921* completed 5 July 1985 and *SB 922* on 20 December 1985. *SB 922* named *Shakhter* in 1989. A fourth of class, *Iva* SB 408, was sold illegally to a Greek company in March 1993 and now flies the flag of Cyprus but is operated as a 'joint venture' with the Russian Navy. Diving facilities to 60 m. Bollard pull 60 tons. *SB 406* based in the Northern Fleet, *SB 921* in the Baltic and *SB 922* in the Black Sea.

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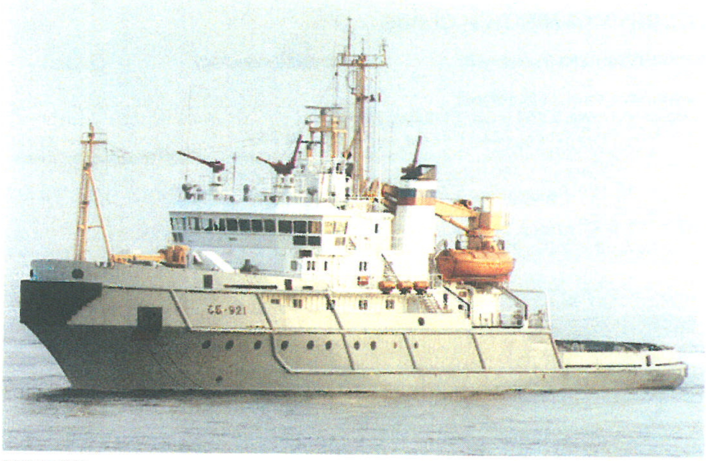

PARADOKS *10/1996, M Nalecz* / 0081720

8 KATUN I (PROJECT 1893) and 4 KATUN II (PROJECT 1993) CLASSES (SALVAGE TUGS) (ATS)

Katun I: PZHS 96, 98, 123, 209, 273, 279, 282, 551
Katun II: PZHS 64, 92, 95, 219

Displacement, tons: 1,005 (Katun I); 1,220 (Katun II) full load
Dimensions, feet (metres): 205.3 × 33.1 × 11.5 *(62 × 10.1 × 3.5)* (Katun I)
Main machinery: 2 diesels; 5,000 hp(m) *(3.68 MW)*; 2 shafts
Speed, knots: 17. **Range, miles:** 2,000 at 17 kt
Complement: 32
Radars: Navigation: Spin Trough or Kivach (Katun II); I-band.
IFF: High Pole A.

Comment: Katun I built at Kolpino 1970-78. Equipped for firefighting and rescue. *PZHS 64, 92, 95 and 219*, all Katun II, were completed in 1982 and are 3 m *(9.8 ft)* longer than Katun I with an extra bridge level and lattice masts. *273* and *279* are based in the Caspian Sea, *92, 95, 209 and 219* in the Pacific, *64* and *98* in the North, *96, 551* and *282* in the Baltic and *123* in the Black Sea.

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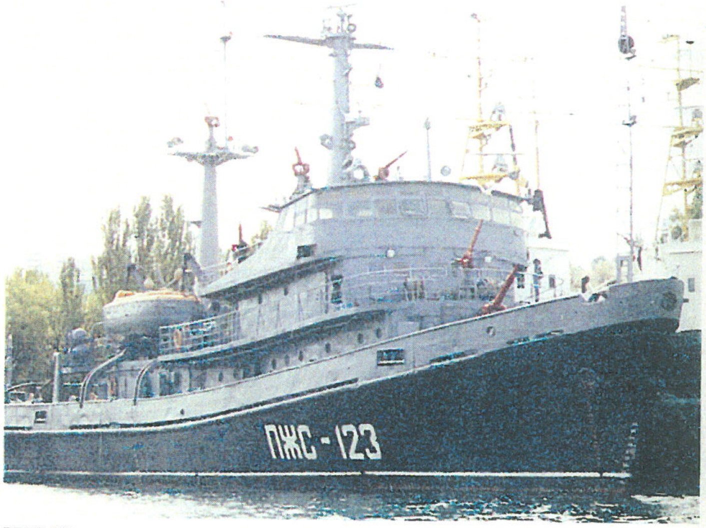

PZHS 123 *8/2000, Hartmut Ehlers* / 0105582

10 GORYN (PROJECT 714) CLASS (ARS/ATA)

MB 15	**MB 18**	**MB 32**	**MB 35**
MB 36	**MB 38**	**MB 119**	**MB 241**
SB 522 (ex-*MB 62*)	**MB 523** (ex-*MB 64*)		

Displacement, tons: 2,240 standard; 2,600 full load
Dimensions, feet (metres): 208.3 × 46.9 × 16.7 *(63.5 × 14.3 × 5.1)*
Main machinery: 2 Russkiy SEMT-Pielstick 6 PC2.5 L 400 diesels; 7,020 hp(m) *(5.2 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 15
Complement: 43 plus 16 spare berths
Radars: Navigation: 2 Don 2 or Nayada or Kivach; I-band.

Comment: Built by Rauma-Repola 1977-83. Have sick-bay. First ships have goalpost mast with 10 and 5 ton derricks and bollard pull of 35 tons. Remainder have an A-frame mast with a 15 ton crane and bollard pull of 45 tons. SB number indicates a 'rescue' tug. Three in the North, four in the Pacific, two in the Baltic and one in the Black Sea. One transferred to Ukraine in 1997.

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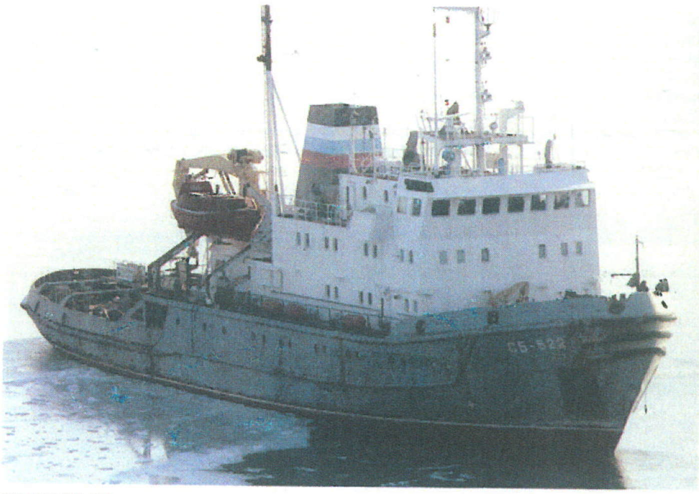

GORYN SB 522 *2/2001, B Lemachko* / 0126222

12 SORUM (PROJECT 745) CLASS (ATA)

MB 4	**MB 37**	**MB 58**	**MB 76**	**MB 100**	**MB 148**
MB 28	**MB 56**	**MB 61**	**MB 99**	**MB 110**	**MB 236**

Displacement, tons: 1,660 full load
Dimensions, feet (metres): 190.2 × 41.3 × 15.1 *(58 × 12.6 × 4.6)*
Main machinery: Diesel-electric; 2 Type 5–2-DW2 diesel generators; 2,900 hp(m) *(2.13 MW)*; 1 motor; 2,000 hp(m) *(1.47 MW)*; 1 shaft
Speed, knots: 14. **Range, miles:** 3,500 at 13 kt
Complement: 35
Guns: 4—30 mm/65 (2 twin) (all fitted for, but only Border Guard ships carry them).
Radars: Navigation: 2 Don 2 or Nayada; I-band.
IFF: High Pole B.

Comment: A class of ocean tugs with firefighting and diving capability. Built in Yaroslavl and Oktyabskoye from 1973 to 1989, design used for Ministry of Fisheries rescue tugs.

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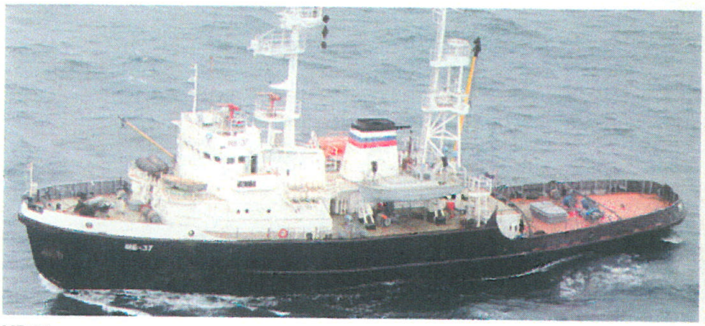

MB 37 *10/2002, Ships of the World* / 0529808

12 OKHTENSKY (PROJECT 733/733S) CLASS (ARS/ATA)

AYANKA SB 3
MOSHCHNY SB 6
MB 12
MB 21
SPUTNIK MB 52
MB 162
SERDITY MB 165
POCHETNYY MB 169
LOKSA MB 171
MB 172
SATURN MB 178
MB 241

Displacement, tons: 948 full load
Dimensions, feet (metres): 156.1 × 34 × 13.4 *(47.6 × 10.4 × 4.1)*
Main machinery: Diesel-electric; 2 BM diesel generators; 1 motor; 1,500 hp(m) *(1.1 MW)*; 1 shaft
Speed, knots: 13. **Range, miles:** 8,000 at 7 kt; 6,000 at 13 kt
Complement: 40
Guns: 2—57 mm/70 (twin) or 2—25 mm/80 (twin) (Border Guard only).
Radars: Navigation: 1 or 2 Don 2 or Spin Trough; I-band.
IFF: High Pole B.

Comment: Ocean-going salvage (MB) and rescue tugs (SB). First of a total of 62 completed 1958. Fitted with powerful pumps and other apparatus for salvage. A number of named ships are operated by the Border Guard and are armed. Two to Ukraine in 1997. Many have been scrapped.

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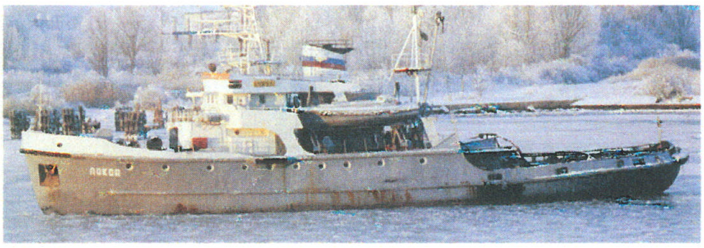

LOKSA *12/2002** / 0573511

HARBOUR TUGS (YTM)

Displacement, tons: 364 full load
Dimensions, feet (metres): 96.2 × 27.2 × 10.5 *(29.3 × 8.3 × 3.2)*
Main machinery: 2 6DR 30/50 diesels; 2 shafts
Speed, knots: 11

Comment: Details given are for the 'Prometey' (Project 498) class. There are numerous other types including Sidehole I and II (Project 737) classes and Stividos (Project 192). Some have BUK designators. Many are laid up.

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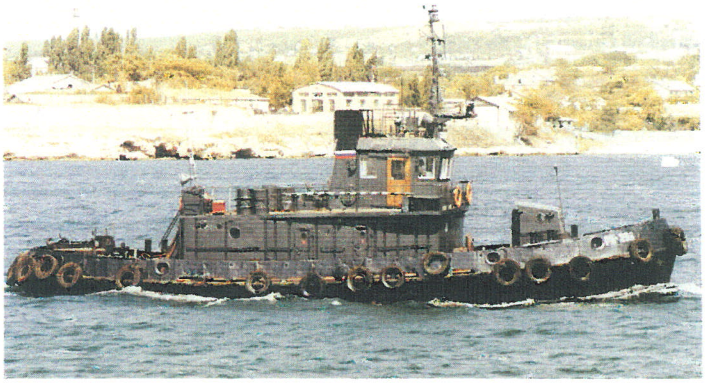


PROMETEY CLASS *7/2000, Hartmut Ehlers* / 0105584

RUSSIAN FEDERAL BORDER GUARD SERVICE (EX-MARITIME BORDER GUARD)

General

(1) The Border Guard would be integrated with naval operations in a crisis. Formerly run by the KGB, the force came under the Ministry of Defence in October 1991 and was then given to the Ministry of Interior in December 1993. It merged with the Federal Security Service on 11 March 2003.

(2) From 1993 the Border Guard started to fly its own ensign which is the St Andrews Cross with a white border on a green background. Diagonal stripes are painted on the hull in white/blue/red. So far these colours have been seen in all Fleets except the Black Sea.

(3) Roles include Law Enforcement, Port Security, Counter Intelligence, Counter Terrorism and Fishery Protection.

Personnel

2004: 10,000 approx

FRIGATES

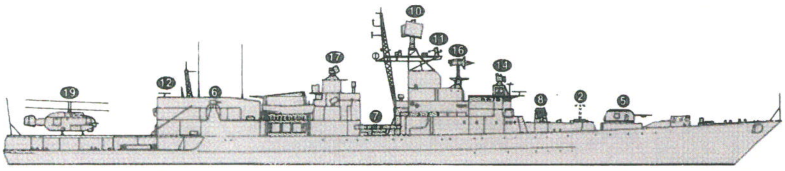
Notes: In addition to the frigates listed, there are believed to be a 'Grisha V' *(Stelyak)*, three 'Grisha III' *(Bezuprechniy, Zorkiy* and *Smelyy)*, which operate in the Pacific region. However, their operational status is not known. Four 'Grisha II' *(Izumrud, Predaniy, Nadezhnyy* and *Dozorniy)* are reported to be based in the Northern region but their operational status is also unknown.

7 KRIVAK III (NEREY) (PROJECT 1135MP) CLASS (FFHM)

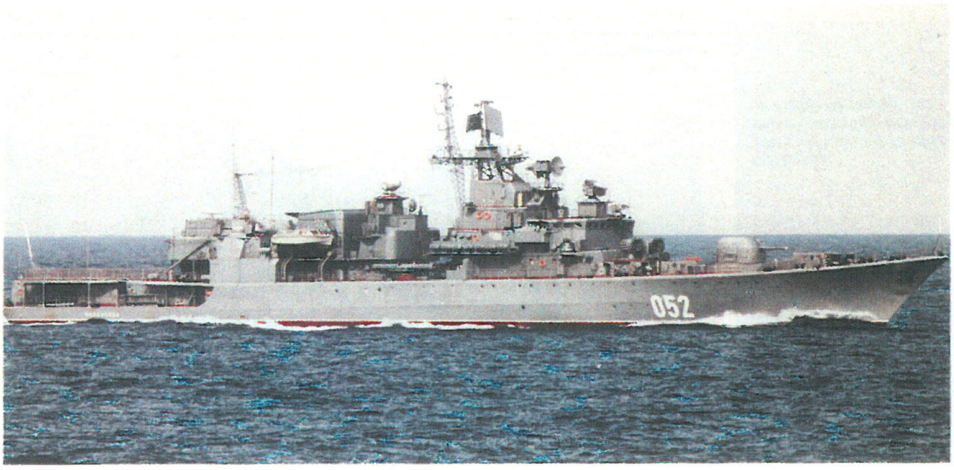
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
MENZHINSKY	113	Kamish-Burun, Kerch	14 Aug 1981	31 Dec 1982	29 Dec 1983
DZERZHINSKY	097	Kamish-Burun, Kerch	11 Jan 1984	2 Mar 1984	29 Dec 1984
OREL (ex-*Imeni XXVII Sezda KPSS*)	156	Kamish-Burun, Kerch	26 Sep 1983	2 Nov 1985	30 Sep 1986
PSKOV (ex-*Imeni LXX Letiya VCHK-KGB*)	104	Kamish-Burun, Kerch		1987	30 Dec 1987
ANADYR (ex-*Imeni LXX Letiya Pogranvoysk*)	060	Kamish-Burun, Kerch	22 Oct 1987	28 Mar 1988	16 Aug 1989
KEDROV	103	Kamish-Burun, Kerch	5 Nov 1988	30 Apr 1989	20 Nov 1990
VOROVSKY	052	Kamish-Burun, Kerch	20 Feb 1990	28 July 1990	29 Dec 1990

Displacement, tons: 3,100 standard; 3,650 full load
Dimensions, feet (metres): 405.2 × 46.9 × 24 (sonar) *(123.5 × 14.3 × 7.3)*

Main machinery: COGAG; 2 M8K gas-turbines; 55,500 hp(m) *(40.8 MW)*; 2 M 62 gas-turbines; 13,600 hp(m) *(10 MW)*; 2 shafts



KRIVAK III *(Scale 1 : 1,200), Ian Sturton*



VOROVSKY (III) *10/1991*

Speed, knots: 32. **Range, miles:** 4,000 at 14 kt; 1,600 at 30 kt
Complement: 194 (18 officers)

Missiles: SAM: 1 SA-N-4 Gecko (Zif 122) twin launchers ❷; Osa-M semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; warhead 50 kg; altitude 9.1-3,048 m *(30-10,000 ft)*; 20 missiles.
Guns: 1—3.9 in *(100 mm)*/59 ❺; 60 rds/min to 15 km *(8.2 n miles)*; weight of shell 16 kg.
2—30 mm/65 ❻; 6 barrels per mounting; 3,000 rds/min combined to 2 km.
Torpedoes: 8—21 in *(533 mm)* (2 quad) tubes ❼. Combination of 53 cm torpedoes (see table at front of section).
A/S mortars: 2 RBU 6000 12-tubed trainable ❽; range 6,000 m; warhead 31 kg. MRG-7 55 mm grenade launcher.
Mines: Capacity for 16.
Countermeasures: Decoys: 4 PK 16 or 10 PK 10 chaff launchers. Towed torpedo decoy.
ESM/ECM: 2 Bell Shroud. 2 Bell Squat. Half Cup laser warning (in some).
Radars: Air search: Top Plate ❿; 3D; D/E-band.
Surface search: Peel Cone ⓬; I-band.
Fire control: Pop Group ⓮; F/H/I-band (for SA-N-4). Kite Screech ⓰; H/I/K-band. Bass Tilt ⓱; H/I-band.
IFF: High Pole B. Salt Pot.
Sonars: Bull Nose (MGK-335S or MG-332); hull-mounted; active search and attack; medium frequency.

Helicopters: 1 Ka-27 Helix ⓳.

Programmes: Type name was originally *bolshoy protivolodochny korabl*, meaning large anti-submarine ship. Changed in 1977-78 to *storozhevoy korabl* meaning escort ship. The naval Krivaks are known as the 'Burevestnik' class.
Structure: 'Krivak III' class built for the former KGB but now under Border Guard Control. The removal of SS-N-14 and one SA-N-4 mounting compensates for the addition of a hangar and flight deck.
Sales: The 'Talwar' class is an improved version of the Krivak III being built for India. Three of the 'Krivak' III class transferred to Ukraine in July 1997.

NEW ENTRY

PATROL FORCES

Notes: In addition to the patrol forces listed, *Pluton* and *Strelets*, two 'Yug' class former research vessels, are operated as patrol craft in Arctic waters.

8 ALPINIST (PROJECT 503) CLASS (PBO)

ANTIAS **ARGAL** **BARS** **DIANA** **PALIYA** **PARELLA** +2

Displacement, tons: 1,150 full load
Dimensions, feet (metres): 176.2 × 34.4 × 13.4 *(53.7 × 10.5 × 4.1)*
Main machinery: 1 diesel; 1 shaft; cp prop
Speed, knots: 12. **Range, miles:** 7,000 at 12 kt
Complement: 44

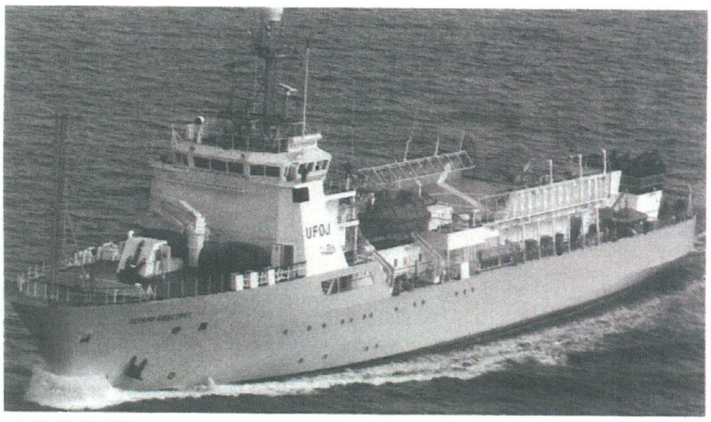
Comment: Trawler design adapted for use as fishery protection role. The named ships were built at Volgograd and at Khabarovsk between 1997 and 2000 while the latest two (unnamed) ships were built at Yarslavl and entered service in late 2001.
NEW ENTRY

4 KOMANDOR CLASS (PSO)

KOMANDOR **SHKIPER GYEK** **HERLUF BIDSTRUP** **MANCHZHUR**

Displacement, tons: 2,435 full load
Dimensions, feet (metres): 289.7 × 44.6 × 15.4 *(88.3 × 13.6 × 4.7)*
Main machinery: 2 Russkiy SEMT-Pielstick 6 PC2.5 L400 diesels; 7,020 hp(m) *(5.2 MW)*; 1 shaft; cp prop; bow thruster
Speed, knots: 20. **Range, miles:** 7,000 at 19 kt
Complement: 42
Radars: Navigation: Furuno; I-band.
Helicopters: 2 Ka-32 Helix D for SAR.

Comment: Specialist offshore patrol vessels ordered in December 1987 from Danyard, Frederikshaven, Denmark and delivered 1989-1990. The hangar is below the helicopter deck. Transferred from the Ministry of Fisheries to the Federal Border Guard and based in the Pacific.
NEW ENTRY



HERLUF BIDSTRUP *5/1992*, 92 WING RAAF* / 0506095

1 AKADEMIK FERSMAN CLASS (PSO)

SPASTEL PROCONCHIK (ex-*Akademik Fersman*)

Displacement, tons: 3,250 full load
Dimensions, feet (metres): 268.8 × 48.6 × 16.4 *(81.9 × 14.8 × 5.0)*
Main machinery: 1 Zgoda-Sulzer diesel; 1 shaft; cp prop
Speed, knots: 14. **Range, miles:** 12,000 at 14 kt
Complement: 30 + 29 spare

Comment: Former seismic research ship which was built at Szczecin, Poland and originally entered service in 1986. Transferred to Russian government service in 1997.
NEW ENTRY

4 IVAN SUSANIN (PROJECT 97P) CLASS (PATROL SHIPS) (PGH)

AISBERG 150 **MURMANSK** (ex-*Dunay*) 018 **NEVA** 170 **VOLGA** 183

Displacement, tons: 3,567 full load
Dimensions, feet (metres): 229.7 × 59.4 × 21 *(70 × 18.1 × 6.4)*
Main machinery: Diesel-electric; 3 Type 13-D-150 diesel generators; 3 motors; 5,400 hp(m) *(4 MW)*; 3 shafts (1 fwd, 2 aft)
Speed, knots: 14.5. **Range, miles:** 5,500 at 12.5 kt
Complement: 45
Guns: 2—3 in *(76 mm)*/60 (twin). 2—30 mm/65 AK 630 (not in all).
Radars: Surface search: Strut Curve; F-band.
Navigation: 2 Don Kay or Palm Frond; I-band.
Fire control: Hawk Screech; I-band.
Helicopters: Platform only.

Comment: Built at Admiralty Yard, Leningrad between 1974 and 1981. Generally similar to 'Dobrynya Nikitich' class though larger with a tripod mast and different superstructure. Former icebreakers operated primarily as patrol ships. Two in the Pacific and two in the Northern Fleet. Two deleted so far.
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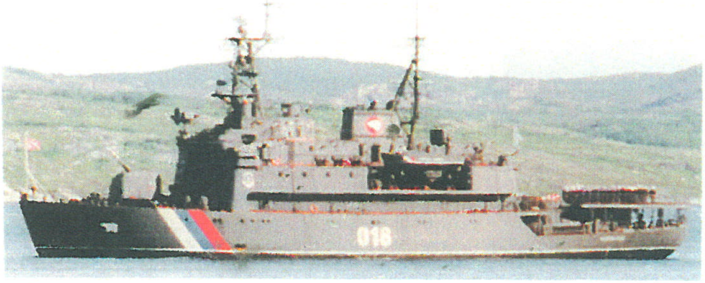

MURMANSK *8/2002* / 0528312

17 SORUM (PROJECT 745P) CLASS (PBO)

ALDAN (ex-*Bug*) 142
AMUR 043
BREST 106
CHUKOTKA 067
DON 103
KAMCHATKA 198
KARELIA 103
SAKHALIN 185
URAL 016
BAYKAL (ex-*Yan Berzin*) 105
YENISEY 030
ZABAYKALYE 073
ZAPOLARYE 038
PRIMORYE 172
LADOGA 058
TVER 022
VYATKA (ex-*Victor Kingisepp*) 035

Displacement, tons: 1,660 full load
Dimensions, feet (metres): 190.2 × 41.3 × 15.1 *(58 × 12.6 × 4.6)*
Main machinery: Diesel-electric; 2 Type 5—2-DW2 diesel generators; 2,900 hp(m) *(2.13 MW)*; 1 motor; 2,000 hp(m) *(1.47 MW)*; 1 shaft
Speed, knots: 14. **Range, miles:** 3,500 at 13 kt
Complement: 35
Guns: 4—30 mm/65 (2 twin) (all fitted for, but only Border Guard ships carry them).
Radars: Navigation: 2 Don 2 or Nayada; I-band.
IFF: High Pole B.

Comment: A class of ocean tugs armed for use as patrol vessels in the North, Pacific, Baltic and Caspian. Built in Yaroslavl and Oktyabskoye from 1973 to 1989, design used for Ministry of Fisheries rescue tugs.
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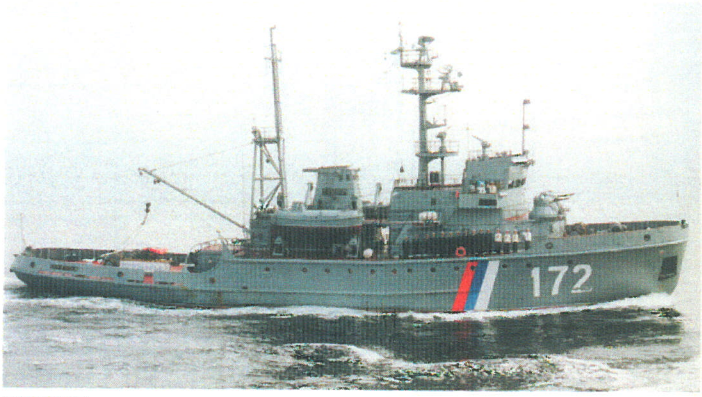

PRIMORYE *9/2002, Hachiro Nakai* / 0528309

20 SVETLYAK (PROJECT 1041Z) CLASS (FAST ATTACK CRAFT—PATROL) (PGM)

PSKR-921	**OTVAZHNIY**	011
PSKR-914	**KORSAKOV**	013
PSKR-920	**PODOLSK**	014
PSKR-915	**NEVELSK**	023
PSKR-918	**YUZHNO-SAKHALINSK**	026
PSKR-906	**SOCHI**	028
PSKR-911	**SIKTIVKAR**	042
PSKR-908	**BRIZ**	065
PSKR-903	**CHOLMSK**	088
PSKR-902	**STAVROPOL**	100
PSKR-913	**KIZLJAR**	139
PSKR-912	**DERBENT**	137
PSKR-909	**VYBORG**	141
PSKR-913	**ALMAZ**	143
+6		

Displacement, tons: 375 full load
Dimensions, feet (metres): 159.1 × 30.2 × 11.5 *(48.5 × 9.2 × 3.5)*
Main machinery: 3 diesels; 14,400 hp(m) *(10.58 MW)*; 3 shafts
Speed, knots: 31. **Range, miles:** 2,200 at 13 kt
Complement: 36 (4 officers)
Missiles: SAM: SA-N-5 Grail quad launcher; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; warhead 1.5 kg.
Guns: 1—3 in *(76 mm)*/60; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
1 or 2—30 mm/65 AK 630; 6 barrels; 3,000 rds/min combined to 2 km; 12 missiles.
Torpedoes: 2—16 in *(406 mm)* tubes; SAET-40; anti-submarine; active/passive homing to 10 km *(5.4 n miles)* at 30 kt; warhead 100 kg.
Depth charges: 2 racks; 12 charges.
Countermeasures: Decoys: 2 PK 16 chaff launchers.
Weapons control: Hood Wink optronic director.
Radars: Air/surface search: Peel Cone; E-band.
Fire control: Bass Tilt (MP 123); H/I-band.
Navigation: Palm Frond B; I-band.
IFF: High Pole B. Square Head.
Sonars: Rat Tail; VDS; active search; high frequency.

Comment: A class of attack craft for the Border Guard built at Vladivostok, St Petersburg and Yaroslavl. Series production after first of class trials in 1989. Although deliveries have been very slow in recent years, the class may still be building with the most recent launch in May 2000. One has a second AK 630 gun vice the 76 mm and no Bass Tilt radars. Six in the Northern Fleet, three in the Baltic, seven in the Pacific, two in the Caspian and two in the Black Sea are all known to be active. Two have been built for Vietnam. Three additional craft operated by the Navy.
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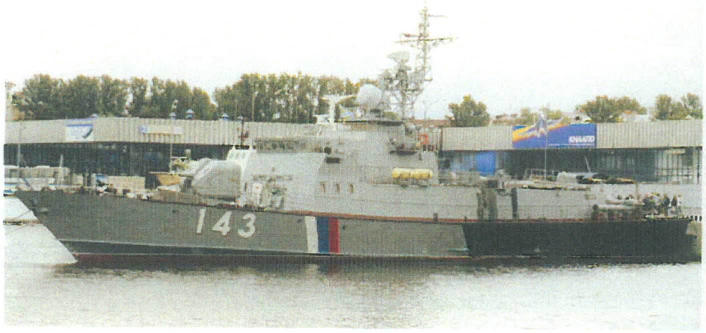


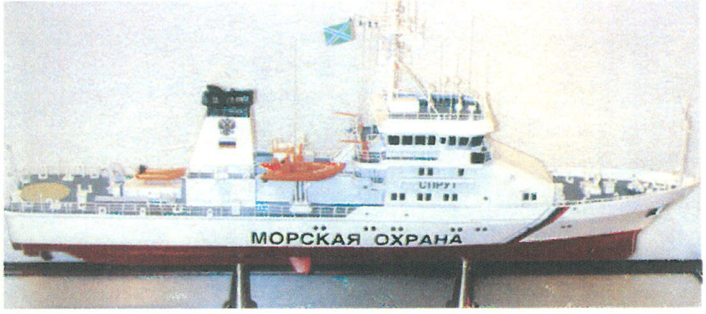
ALMAZ *6/2003*, A Sheldon-Duplaix* / 0570905

0 + 1 (9) SPRUT (PROJECT 6457S) CLASS (PSO)

Displacement, tons: 900 standard
Dimensions, feet (metres): 214.9 × 34.8 × 11.5 *(65.5 × 10.6 × 3.5)*
Main machinery: 1 MTU 16V 1163 diesel; 7,000 hp(m) *(5.2 MW)*; 1 shaft; fixed propeller
Speed, knots: 21.5. **Range, miles:** 12,000 at 12 kt
Complement: 15 + 10 in temporary accommodation
Radars: Surface search: I-band.
Navigation: I-band.
Helicopters: Platform for 1 light.

Comment: Specialist Fishery Protection vessel based on German Coast Guard 'Bad Bramstedt' design. First of class laid down at Yantar, Kaliningrad on 27 May 2002 for delivery in 2004. Steel hull with aluminium superstructure. Equipped with a high speed RHIB for interception. A class of ten is planned.

NEW ENTRY



SPRUT *4/2003*, Military Parade* / 0570892

18 PAUK I (MOLNYA) (PROJECT 1241-2) CLASS
(FAST ATTACK CRAFT—PATROL) (PCM)

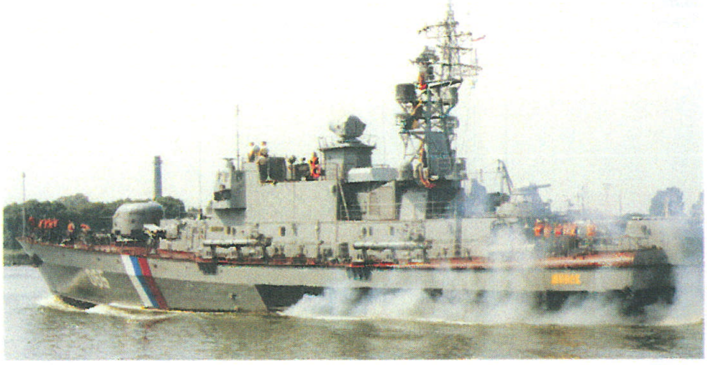
PSKR-804	**TOLYATTI**	021
PSKR-818	**NAKHODKA**	023
PSKR-802	**KALININGRAD**	024
PSKR-810	**YAROSLAVL**	031
PSKR-816	**YASTREB**	037
PSKR-811	**SARYCH**	040
PSKR-808	**GRIF**	041
PSKR-814	**ORLAN**	042
PSKR-817	**CHEBOKSARY**	052
PSKR-812	**SOKOL**	063
PSKR-806	**MINSK**	065
PSKR-815	**NIKOLAY KAPLUNOV**	077
PSKR-803	**KONDOR**	130
PSKR-801	**VORON**	132
PSKR-809	**KRECHET**	134
PSKR-800	**BERKUT**	136
PSKR-807	**KOBCHIK**	152
PSKR-805	**KORSHUN**	182

Displacement, tons: 440 full load
Dimensions, feet (metres): 189 × 33.5 × 10.8 *(57.6 × 10.2 × 3.3)*
Main machinery: 2 Type M 521 diesels; 16,184 hp(m) *(11.9 MW)* sustained; 2 shafts
Speed, knots: 32. **Range, miles:** 2,400 at 14 kt
Complement: 38

Missiles: SAM: SA-N-5 Grail quad launcher; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg; 8 missiles.
Guns: 1—3 in *(76 mm)*/60; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
1—30 mm/65 AK 630; 6 barrels; 3,000 rds/min combined to 2 km.
Torpedoes: 4—16 in *(406 mm)* tubes. For torpedo details see table at front of section.
A/S mortars: 2 RBU 1200 5-tubed fixed; range 1,200 m; warhead 34 kg.
Depth charges: 2 racks (12).
Countermeasures: Decoys: 2 PK 16 or 4 PK 10 chaff launchers.
ESM: 3 Brick Plug and 2 Half Hat; radar warning.
Weapons control: Hood Wink optronic director.
Radars: Air/surface search: Peel Cone; E/F-band.
Surface search: Kivach or Pechora or SRN 207; I-band.
Fire control: Bass Tilt; H/I-band.
Sonars: Foal Tail; VDS (mounted on transom); active attack; high frequency.

Programmes: First laid down in 1977 and completed in 1979. In series production at Yaroslavl in the Black Sea and at Vladivostok until 1988 when the 'Svetlyak' class took over. Type name is *maly protivolodochny korabl* meaning small anti-submarine ship. An improved version building at Kharbarovsk in 1995 was not completed.
Structure: An ASW version of the 'Tarantul' class having the same hull form with a 1.8 m extension for dipping sonar. *Berkut, Voron* and *Kaliningrad* have a lower bridge than others. A modified version (Pauk II) with a longer superstructure, two twin 533 mm torpedo tubes and a radome similar to the 'Parchim' class built for export.
Operational: Five in the Baltic, two in the Black Sea and the remainder in the Pacific. In addition five naval craft are laid up in the Baltic and one in the Black Sea.
Sales: All Pauk II: First one to India in March 1989, second in January 1990, third in December 1990 and fourth in February 1991. One Pauk I to Bulgaria in September 1989 and a second in December 1990. Two Pauk I to Ukraine in 1996. A variant design is being built for Vietnam.

UPDATED



MINSK *7/2003*, Freddy Philips* / 0570908

15 STENKA (TARANTUL) (PROJECT 205P) CLASS
(FAST ATTACK CRAFT—PATROL) (PTF)

PSKR-714	014	**PSKR-717**	078	**PSKR-641**	133
PSKR-660	044	**PSKR-712**	132	**PSKR-725**	134
PSKR-700	047	**PSKR-665**	113	**PSKR-631**	137
PSKR-715	048	**PSKR-657**	126	**PSKR-659**	139
PSKR-718	053	**PSKR-690**	129	**PSKR-723**	143

Displacement, tons: 211 standard; 253 full load
Dimensions, feet (metres): 129.3 × 25.9 × 8.2 *(39.4 × 7.9 × 2.5)*
Main machinery: 3 Type M 517 or M 583 diesels; 14,100 hp(m) *(10.36 MW)*; 3 shafts
Speed, knots: 37. **Range, miles:** 800 at 24 kt; 500 at 35 kt; 2,300 at 14 kt
Complement: 25 (5 officers)
Guns: 4—30 mm/65 (2 twin) AK 230.
Torpedoes: 4—16 in *(406 mm)* tubes.
Depth charges: 2 racks.
Radars: Surface search: Pot Drum or Peel Cone; H/I- or E-band.
Fire control: Drum Tilt; H/I-band.
Navigation: Palm Frond; I-band.
IFF: High Pole. 2 Square Head.
Sonars: Stag Ear or Foal Tail; VDS; high frequency; Hormone type dipping sonar.

Comment: Based on the hull design of the 'Osa' class. Construction started in 1967 and continued at a rate of about five a year at Petrovsky, Leningrad and Vladivostok for the Border Guard. Programme terminated in 1989 at a total of 133 hulls. Type name is *pogranichny storozhevoy korabl* meaning border patrol ship. Four based in the Baltic, five in the Black Sea, one in the Pacific, and five in the Caspian Sea.

Transfers include: Cuba, two in February 1985 and one in August 1985. Four to Cambodia in October 1985 and November 1987. Five transferred to Azerbaijan control in November 1992 and 10 more to Ukraine.

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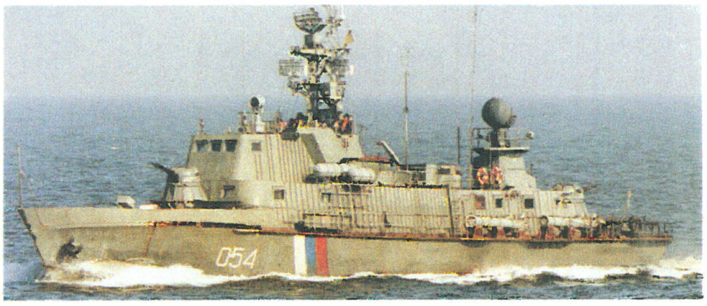


STENKA *6/2000* / 0126309

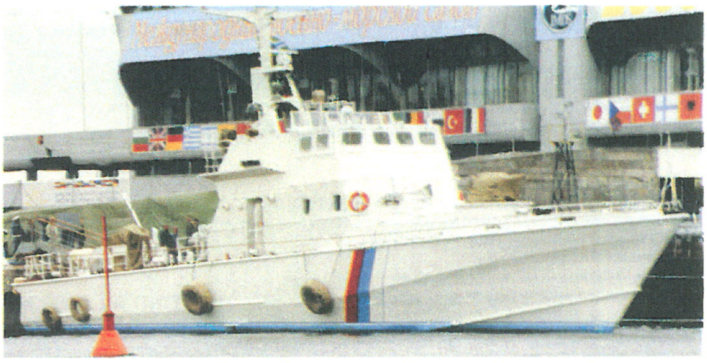
1 + 1 (18) MIRAZH (PROJECT 14310) CLASS (PBF)

PK 500

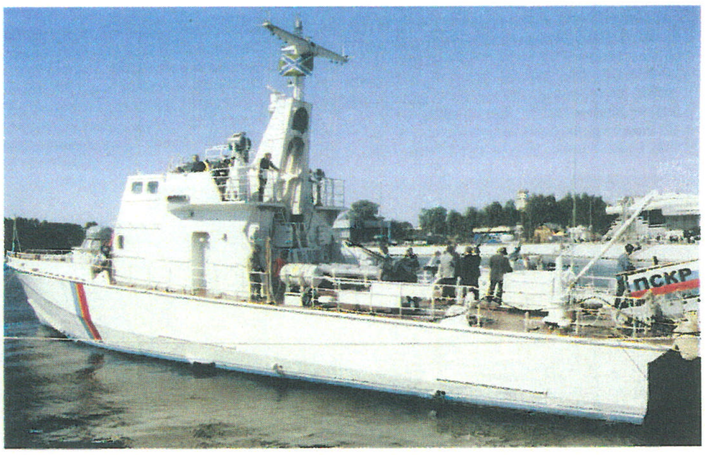
Displacement, tons: 126 full load
Dimensions, feet (metres): 111.5 × 21.7 × 8.9 *(34.0 × 6.6 × 2.7)*
Main machinery: 2 Zvezda M-521 diesels; 16,184 hp(m) *(11.9 MW)*; 2 shafts
Speed, knots: 48. **Range, miles:** 1,500 at 8 kt
Complement: 12 (2 officers)
Guns: 1—30 mm AK 306.
2—7.62 mm MGs.
Radars: Surface search: I-band.

Comment: Designed by Almaz and built by Vympel Shipbuilding, Rybinsk. Aluminium-magnesium alloy construction. Three vessels authorised for construction in 1993 but only first of class was completed in 1998. It entered service with the Border Guard in 2001 and has been based in the Caspian Sea. A second craft is reported to have been laid down in 2001. While a class of 20 craft is thought to be required, funding has not been confirmed.

NEW ENTRY



MIRAZH *6/2003*, B Lemachko* / 0570906



MIRAZH *6/2003*, E & M Laursen* / 0570907

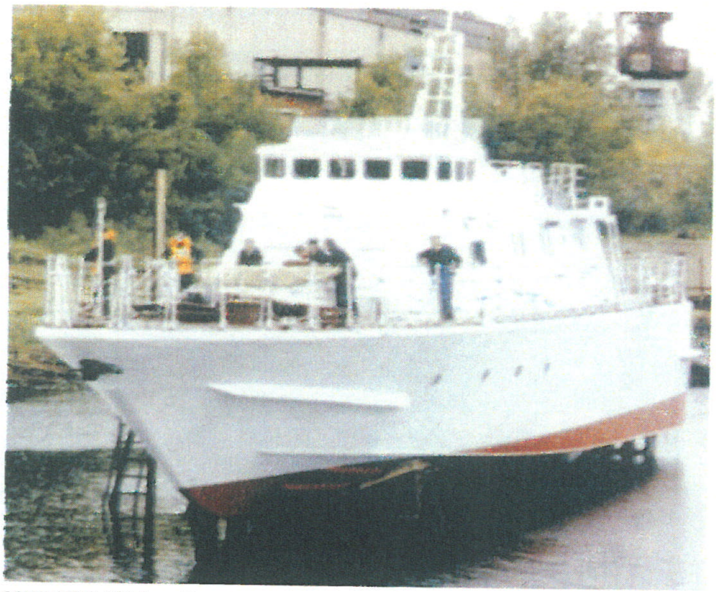
1 + (3) SOKZHOI CLASS (PROJECT 14232) (PBF)

ALBATROS

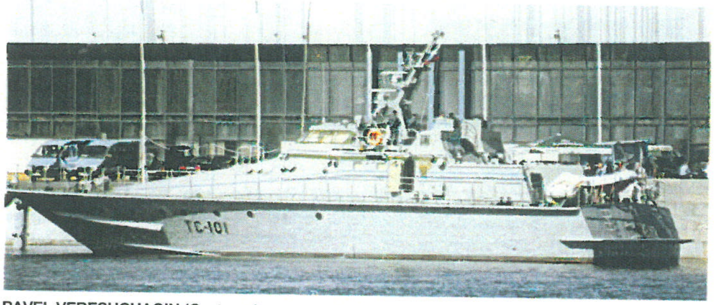
Displacement, tons: 97.7 full load
Dimensions, feet (metres): 106.6 × 12.9 × 7.9 *(32.5 × 3.92 × 2.4)*
Main machinery: 2 Zvezda M535 diesels; 9,923 hp(m) *(7.4 MW)* sustained; 2 shafts
Speed, knots: 50. **Range, miles:** 800
Complement: 16
Guns: 2—30 mm AK-306. 1—14.5 mm MG.

Comment: First of a new class of patrol craft launched at Volga Yard, Nizhny Novgorod on 23 June 2000. A feature of the design is that an air-cushion is generated below the hull to produce a planing effect to reduce drag. The machine-gun is mounted in a barbette in the forward part of the craft. Project 14232 is a family of high-speed air-cavern vessels based on a unified platform design developed by the Alekseyev Hydrofoil Design Bureau, Nizhny Novgorod. Other variants of the design have different superstructure configuration, armament and equipment. These include two unarmed vessels of the sister 'Mercury' class *(Petr Matveyev* (TS-100) and *Pavel Vereshchagin* (TS-101)*)* built for the customs service at Yaroslavl between 1996-2000. Two more of this type ship are to be completed in Yaroslavl and Khabarovsk.

UPDATED



SOKZHOY CLASS (launch) *6/2000, S Breyer* / 0106551



PAVEL VERESHCHAGIN (Customs) *6/2003*, E & M Laursen* / 0570902

20 ZHUK (GRIF) (PROJECT 1400/1400M) CLASS (COASTAL PATROL CRAFT) (PB)

PSKA series

Displacement, tons: 39 full load
Dimensions, feet (metres): 78.7 × 16.4 × 3.9 *(24 × 5 × 1.2)*
Main machinery: 2 Type M 401B diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,100 at 15 kt
Complement: 11 (3 officers)
Guns: 2—14.5 mm (twin, fwd) MGs. 1—12.7 mm (aft) MG.
Radars: Surface search: Spin Trough; I-band.

Comment: Under construction from 1976. Manned by the Border Guard. Export versions have twin (over/under) 14.5 mm aft. Some have twin guns forward and aft. Ukraine Border Guard and has received 12 from the Russians. 16 are in the Baltic and four in the Black Sea. These are the last operational units.

Transfers: Algeria (one in 1981), Angola (one in 1977), Benin (four in 1978-80), Bulgaria (five in 1977), Cape Verde (one in 1980), Congo (three in 1982), Cuba (40 in 1971-88), Equatorial Guinea (three in 1974-75), Ethiopia (two in October 1982 and two in June 1990), Guinea (two in July 1987), Iraq (five in 1974-75), Cambodia (three in 1985-87), Mauritius (two in January 1990), Mozambique (five in 1978-80), Nicaragua (eight in 1982-86), Seychelles (one in 1981, one in October 1982), Somalia (one in 1974), Syria (six in 1981-84), Vietnam (nine in 1978-88 (at least one passed on to Cambodia), five in 1990 and two in 1995), North Yemen (five in 1978-87), South Yemen (two in 1975). Many have been deleted.

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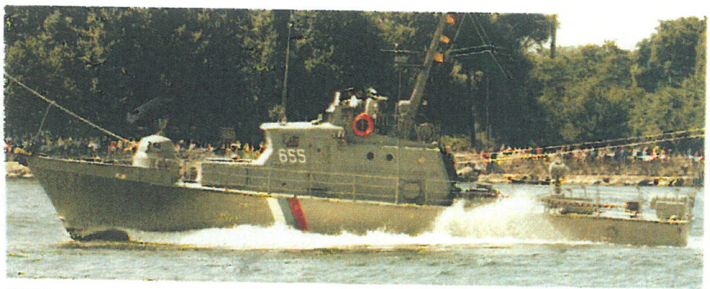


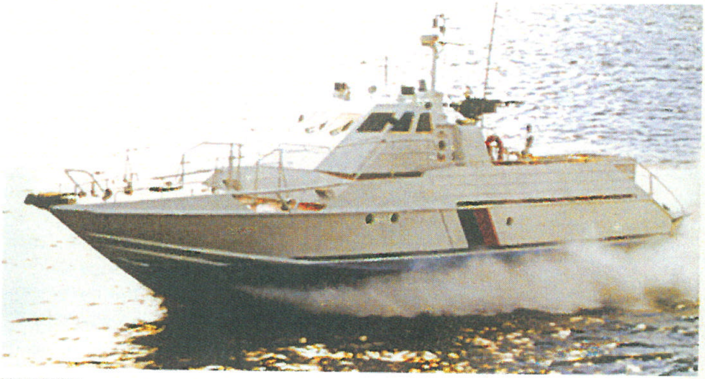
ZHUK *7/1996, J Ciślak* / 0081678

1 + (9) MANGUST (PROJECT 12150) CLASS (PBF)

Displacement, tons: 27 standard
Dimensions, feet (metres): 64.0 × 15.1 × 3.6 *(19.5 × 4.6 × 1.1)*
Main machinery: 2 Zvezda M-470 diesels; 2 Arneson dive props
Speed, knots: 53. **Range, miles:** 250 at 40 kt
Complement: 6
Guns: 2—14.5 mm MGs.
Radars: Navigation: I-band.

Comment: Prototype TS 300 built by Vympel, Rybinsk for the Customs service and completed in 1998. GRP construction. First Border Guard unit entered service in 2001. Further orders are expected.

NEW ENTRY



MANGUST *4/2003*, Military Parade* / 0570900

RIVER PATROL FORCES

Notes: Attached to Black Sea and Pacific Fleets for operations on the Danube, Amur and Usuri Rivers, and to the Caspian Flotilla.

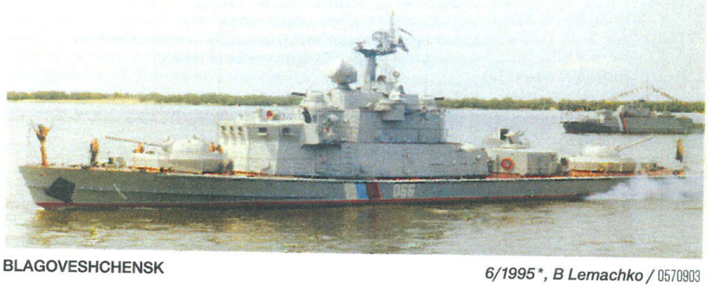
2 YAZ (SLEPEN) (PROJECT 1208) CLASS (PGR)

BLAGOVESHCHENSK 066 **SHKVAL** 106

Displacement, tons: 440 full load
Dimensions, feet (metres): 180.4 × 29.5 × 4.9 *(55 × 9 × 1.5)*
Main machinery: 3 diesels; 11,400 hp(m) *(8.39 MW)*; 3 shafts
Speed, knots: 24. **Range, miles:** 1,000 at 10 kt
Complement: 32 (4 officers)
Guns: 2—115 mm tank guns (TB 62) or 100 mm/56.
2—30 mm/65 AK 630; 6 barrels per mounting.
4—12.7 mm MGs (2 twin).
2—40 mm mortars on after deckhouse.
Radars: Surface search: Spin Trough; I-band.
Fire control: Bass Tilt; H/I-band.
IFF: High Pole B. Square Head.

Comment: First entered service in Amur Flotilla 1978. Built at Khabarovsk until 1987. All but these last two have been placed in reserve.

UPDATED



BLAGOVESHCHENSK *6/1995*, B Lemachko* / 0570903

6 PIYAVKA (PROJECT 1249) CLASS (PBR)

PSKR 52 117
PSKR 53 065
PSKR 54 146
PSKR 55 013
PSKR 56 093
PSKR 57 058

Displacement, tons: 229 full load
Dimensions, feet (metres): 136.5 × 20.7 × 2.9 *(41.6 × 6.3 × 0.9)*
Main machinery: 3 diesels; 3,300 hp(m) *(2.42 MW)*; 2 shafts
Speed, knots: 17
Complement: 30 (4 officers)
Guns: 1—30 mm/65 AK 630; 6 barrels. 2—14.5 mm (twin) MGs.
Radars: Surface search: Spin Trough; I-band.

Comment: Built at Khabarovsk 1979-84. Based in Amur Flotilla mostly for logistic support.

UPDATED

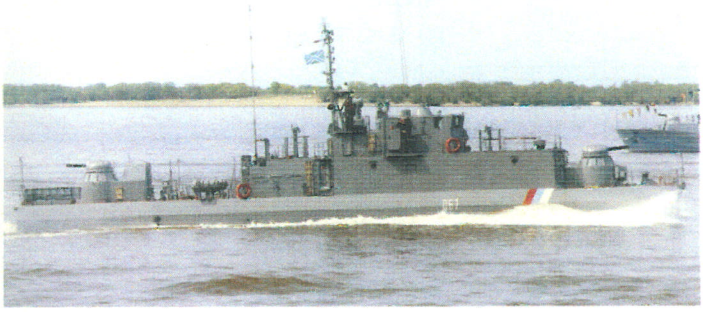
PIYAVKA CLASS *1992, B Lemachko*

3 OGONEK (PROJECT 12130) CLASS (PBR)

Displacement, tons: 98 full load
Dimensions, feet (metres): 109.6 × 13.8 × 2.6 *(33.4 × 4.2 × 0.8)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 25
Complement: 17 (2 officers)
Guns: 2—30 mm AK 630.

Comment: A smaller version of the 'Piyavka' class built at Khabarovsk from 1999. Numbers in service are uncertain.

UPDATED



OGONEK *6/2003*, B Lemachko* / 0576442

15 SHMEL (PROJECT 1204) CLASS (PGR)

PSKR 341-377 (not all in service)

Displacement, tons: 77 full load
Dimensions, feet (metres): 90.9 × 14.1 × 3.9 *(27.7 × 4.3 × 1.2)*
Main machinery: 2 Type M 50 diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 600 at 12 kt
Complement: 12 (4 officers)
Guns: 1—3 in *(76 mm)*/48 (tank turret). 1—25 mm/70 (later ships). 2—14.5 mm (twin) MGs (earlier ships). 5—7.62 mm MGs. 1 BP 6 rocket launcher; 18 barrels.
Mines: Can lay 9.
Radars: Surface search: Spin Trough; I-band.

Comment: Completed at Kerch and Nikolayev North (61 Kommuna) 1967-74. Some of the later ships also mount one or two multibarrelled rocket launchers amidships. The 7.62 mm guns fire through embrasures in the superstructure with one mounted on the 76 mm. Can be carried on land transport. Type name is *artillerisky kater* meaning artillery cutter. About 70 have been scrapped or laid up so far including the last naval units. These last survivors are based on the Amur River and belong to the Border Guard.

Transfers: Four to Cambodia (1984-85). Some have been taken over by Belorussian forces, and others allocated to Ukraine.

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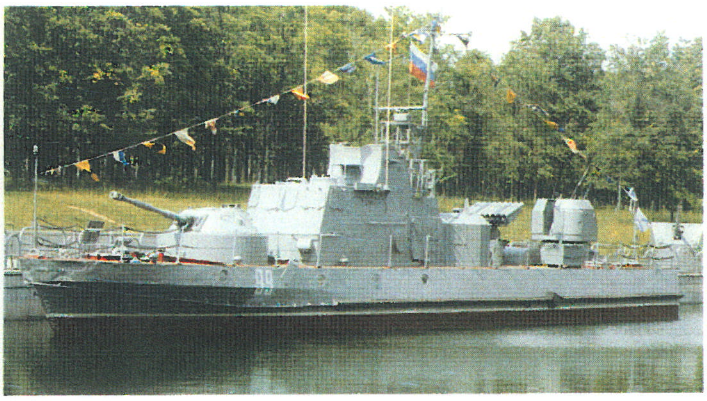


SHMEL *6/2000, B Lemachko* / 0106875

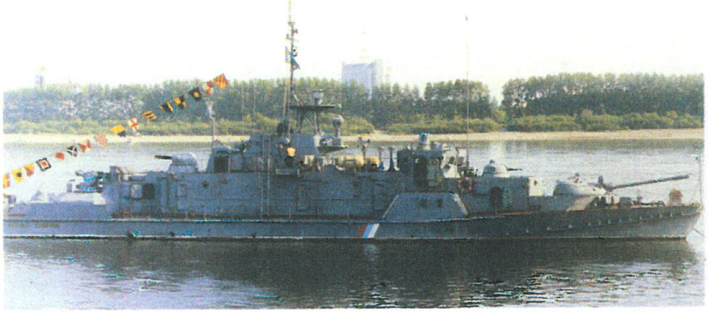
5 VOSH (MOSKIT) (PROJECT 1248) CLASS (PGR)

PSKR 300-310 series

Displacement, tons: 229 full load
Dimensions, feet (metres): 140.1 × 20.7 × 3.3 *(42 × 6.3 × 1)*
Main machinery: 3 diesels; 3,300 hp(m) *(2.42 MW)*; 3 shafts
Speed, knots: 17
Complement: 34 (3 officers)
Guns: 1—3 in *(76 mm)*/48 (tank turret). 1—30 mm/65 AK 630. 2—12.7 mm (twin) MGs.
Countermeasures: 1 twin barrel decoy launcher.
Radars: Surface search: Spin Trough; I-band.

Comment: Built at Sretensk on the Shilka river 1980-84. Based on Amur River. Same hull as Piyavka.

UPDATED



VOSH CLASS *6/2001, B Lemachko* / 0126218

AUXILIARIES

10 NEON ANTONOV (PROJECT 1595) CLASS (TRANSPORTS) (AK)

VASILIY SUNTZOV 154
IVAN LEDNEV 115
NIKOLAY SIPYAGIN 090
IRBIT
VYACHESLAV DENISOV 176
MIKHAIL KONOVALOV 184
NIKOLAY STARSHINOV 119
IVAN YEVTEYEV 105
SERGEY SUDETSKY 143
DVINA

Displacement, tons: 6,400 full load
Dimensions, feet (metres): 311.7 × 48.2 × 21.3 *(95 × 14.7 × 6.5)*
Main machinery: 2 diesels; 7,000 hp(m) *(5.15 MW)*; 2 shafts
Speed, knots: 17. **Range, miles:** 8,500 at 13 kt
Complement: 45
Cargo capacity: 2,500 tons
Missiles: SAM: 2 SA-N-5 Grail twin launchers; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg.
Guns: 2—30 mm/65 (twin). 4—14.5 mm (2 twin) MGs. 4—12.7 mm MGs.
Radars: Navigation: Don Kay; Spin Trough or Palm Frond; I-band.

Comment: Ten of the class built at Nikolayev from 1975 to early 1980s. All in the Pacific except *Dvina* and *Irbit* which are operated by the Russian Navy. Have two small landing craft aft. Armament is not normally mounted.

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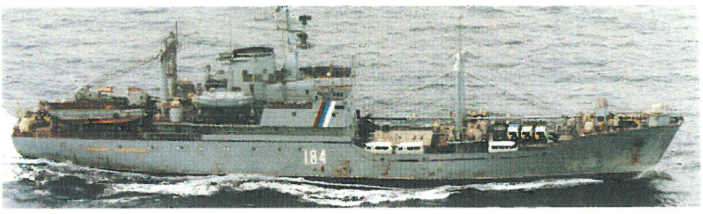


MIKHAIL KONOVALOV *4/1996* / 0019068

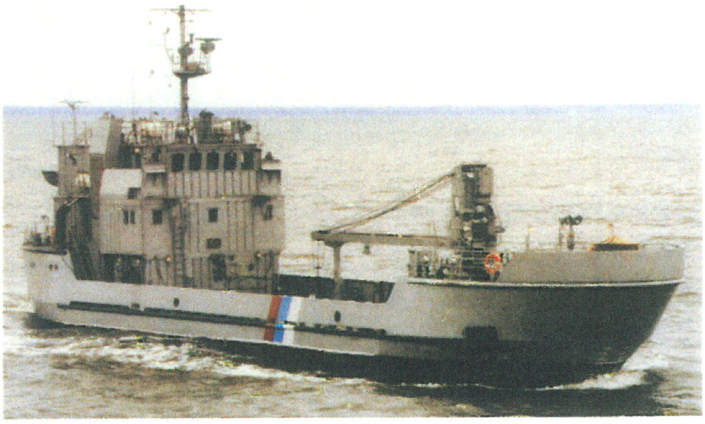
6 KANIN CLASS (PROJECT 16900A) (AKL)

CHANTIJ-MANSISK
JURGA
ARCHANGELSK
KANIN
URENGOY
OGRA

Displacement, tons: 920 full load
Dimensions, feet (metres): 149.6 × 28.9 × 8.2 *(45.6 × 8.8 × 2.5)*
Main machinery: 2 diesels; 800 hp(m) *(558 kW)*; 2 shafts
Speed, knots: 9. **Range, miles:** 3,500 at 9 kt
Complement: 22

Comment: Built in the Pacific since 1996 for the Border Guard. Others may be building for commercial service. Ice reinforced bows for Arctic service. *Chantij-Mansisk* based in the Black Sea.

UPDATED



KANIN CLASS *12/2002*, S Breyer* / 0576443

AMPHIBIOUS FORCES

8 TSAPLYA (MURENA) (PROJECT 12061) CLASS (ACV)

D-143 659
D-259 665
D-453 668
D-325 670
D-285 680
D-458 688
D-142 690
D-447 699

Displacement, tons: 149 full load
Dimensions, feet (metres): 103.7 × 47.6 × 5.2 *(31.6 × 14.5 × 1.6)*
Main machinery: 2 PR-77 gas turbines for lift and propulsion; 8,000 hp *(5.88 MW)*
Speed, knots: 50. **Range, miles:** 500 at 50 kt
Complement: 11 (3 officers) + 100 troops
Guns: 2—300 mm AK 306M. 2—30 mm grenade launchers. 2—12.7 mm MGs.

Comment: Larger version of the 'Lebed' class designed for river patrol. Built at Khabarovsk between 1987 and 1992. Operated on Amur river system.

NEW ENTRY

4 CZILIM (PROJECT 20910) CLASS (ACV/UCAC)

Displacement, tons: 8.6 full load
Dimensions, feet (metres): 39.4 × 19 *(12 × 5.8)*
Main machinery: 2 Deutz BF 6M 1013 diesels; 435 hp(m) *(320 kW)* sustained; for lift and propulsion
Speed, knots: 40. **Range, miles:** 300 n miles at 30 kt
Complement: 2 + 6 Border Guard
Guns: 1—7.62 mm MG. 1—40 mm RPG.
Radars: Navigation: I-band.

Comment: Ordered from Jaroslawski Sudostroiteinyj Zawod to an Almaz design for Special Forces of the Border Guard. First one laid down 24 February 1998 and in service in early 2001. Further vessels are expected.

UPDATED

St Kitts and Nevis

Country Overview

The Federation of St Kitts and Nevis gained independence in 1983; the British monarch, represented by a governor-general, is the head of state. Located at the northern end of the Leeward Islands in the Lesser Antilles chain, the country comprises St Kitts (formerly Saint Christopher) (68 square miles) and, 2 n miles to the southeast, Nevis (36 square miles). The constitution allows for the secession of Nevis from the federation. The capital of St Kitts and of the federation is Basseterre; Charlestown is the capital and largest town on Nevis. Territorial seas (12 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has been claimed but the limits are not defined. The Coast Guard was part of the Police Force until 1997 when it transferred to the Regular Corps of the Defence Force.

Headquarters Appointments

Commanding Officer Coast Guard:
Major Patrick Wallace

Bases

Basseterre

Personnel

2004: 45

COAST GUARD

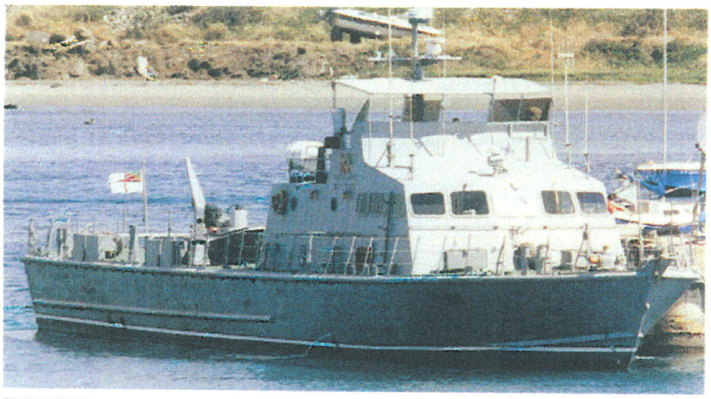
Notes: (1) There is a 40 kt RIB number *C 420.*
(2) A 920 Zodiac RHIB was donated by the US government in 2003.

1 SWIFTSHIPS 110 ft CLASS (PB)

STALWART C 253

Displacement, tons: 100 normal
Dimensions, feet (metres): 116.5 × 25 × 7 *(35.5 × 7.6 × 2.1)*
Main machinery: 4 Detroit 12V-71TA diesels; 1,680 hp *(1.25 MW)* sustained; 4 shafts
Speed, knots: 21. **Range, miles:** 1,800 at 15 kt
Complement: 14
Guns: 2—12.7 mm MGs. 2—7.62 mm MGs.
Radars: Surface search: Raytheon; I-band.
Navigation: Furuno; I-band

Comment: Built by Swiftships, Morgan City, and delivered August 1985. Aluminium alloy hull and superstructure. ***UPDATED***



STALWART ***3/1998*** / 0050088

1 DAUNTLESS CLASS (PB)

ARDENT C 421

Displacement, tons: 11 full load
Dimensions, feet (metres): 40 × 14 × 4.3 *(12.2 × 4.3 × 1.3)*
Main machinery: 2 Caterpillar 3208TA diesels; 870 hp *(650 kW)*; 2 shafts
Speed, knots: 27. **Range, miles:** 600 at 18 kt
Complement: 4
Guns: 1—7.62 mm MG.
Radars: Surface search: Raytheon; I-band.

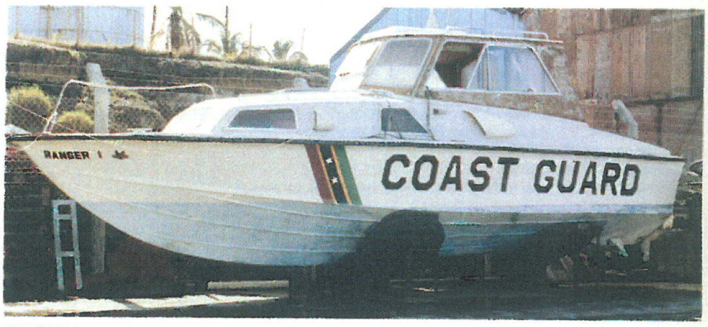
Comment: Built by SeaArk Marine under FMS funding and commissioned 8 August 1995. ***VERIFIED***

1 FAIREY MARINE SPEAR CLASS (PB)

RANGER I

Displacement, tons: 4.3 full load
Dimensions, feet (metres): 29.8 × 9.5 × 2.8 *(9.1 × 2.8 × 0.9)*
Main machinery: 2 Ford Mermaid diesels; 360 hp *(268 kW)*; 2 shafts
Speed, knots: 20
Complement: 2
Guns: Mountings for 2—7.62 mm MGs.

Comment: Ordered for the police in June 1974 and delivered 10 September 1974. Refitted 1986. Considerably slower than when new but still in service. ***VERIFIED***



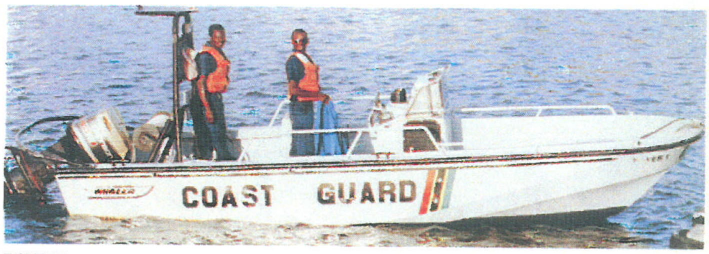
RANGER I ***1992, St Kitts-Nevis Police*** / 0081726

2 BOSTON WHALERS (PBF)

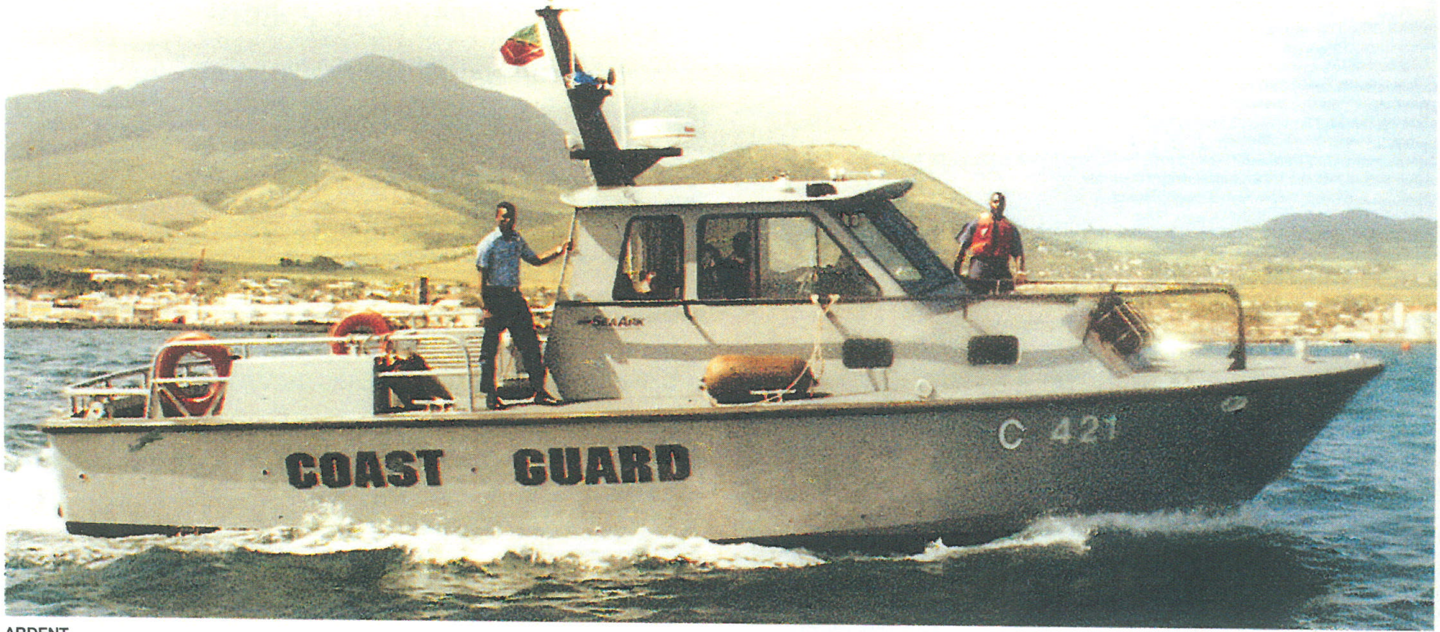
ROVER I C 087 **ROVER II** C 088

Displacement, tons: 3 full load
Dimensions, feet (metres): 22 × 7.5 × 2 *(6.7 × 2.3 × 0.6)*
Main machinery: 1 Johnson outboard; 223 hp *(166 kW)*
Speed, knots: 35. **Range, miles:** 70 at 35 kt
Complement: 2

Comment: Delivered in May 1988. ***UPDATED***



ROVER I ***1990, St Kitts-Nevis Police*** / 0081727



ARDENT ***8/1996, St Kitts-Nevis Police*** / 0081725

St Lucia

Country Overview

St Lucia gained independence in 1979; the British monarch, represented by a governor-general, is the head of state. The island (617 square miles) is one of the Windward Islands of the Lesser Antilles chain and is located between Martinique to the north and St Vincent to the south. The capital, main town and principal port is Castries, on the northwestern coast. Territorial seas (12 n miles) are claimed. Exclusive Economic Zone (EEZ) limits will not be fully defined until outstanding boundary disagreements have been resolved.

Headquarters Appointments

Coast Guard Commander:
Assistant Superintendent Stephen Mitille

Bases

Castries, Vieux-Fort

Personnel

2004: 49

COAST GUARD

1 POINT CLASS (PB)

ALPHONSE REYNOLDS (ex-*Point Turner*) P 01 (ex-WPB 82365)

Displacement, tons: 66 full load
Dimensions, feet (metres): 83 × 17.2 × 5.8 *(25.3 × 5.2 × 1.8)*
Main machinery: 2 Caterpillar 3412 diesels; 1,600 hp *(1.19 MW)*; 2 shafts
Speed, knots: 23. **Range, miles:** 1,500 at 8 kt
Complement: 10
Guns: 2—12.7 mm MGs.
Radars: Surface search: Raytheon SPS-64(V)1; I-band.

Comment: Ex-US Coast Guard ship transferred on 3 April 1998. Originally built at Curtis Bay and first commissioned 14 April 1967.

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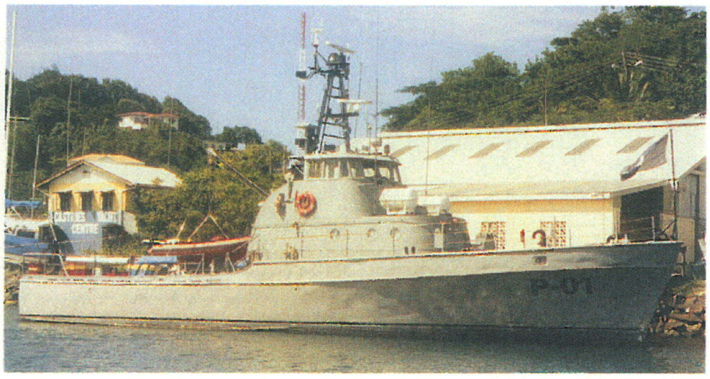

ALPHONSE REYNOLDS *10/1999, St Lucia CG* / 0081728

1 SWIFT 65 ft CLASS (PB)

DEFENDER P 02

Displacement, tons: 42 full load
Dimensions, feet (metres): 64.9 × 18.4 × 6.6 *(19.8 × 5.6 × 2)*
Main machinery: 2 Detroit 12V-71 diesels; 680 hp *(507 kW)* sustained; 2 shafts
Speed, knots: 22. **Range, miles:** 1,500 at 18 kt
Complement: 7
Radars: Surface search: Furuno; I-band.

Comment: Ordered from Swiftships, Morgan City in November 1983. Commissioned 3 May 1984. Similar to craft supplied to Antigua and Dominica. Painted grey instead of original blue and white.

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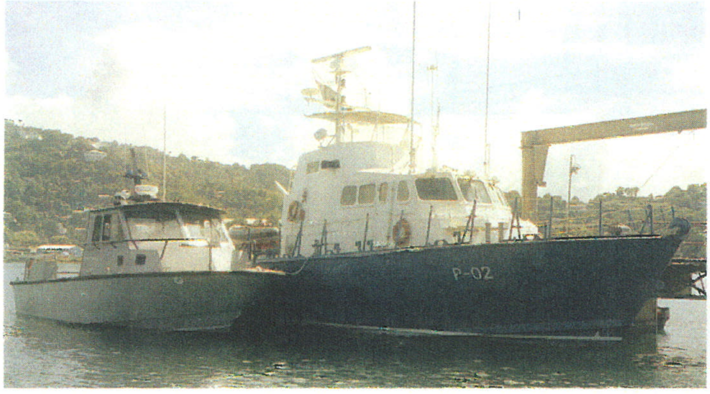

DEFENDER *10/1999, St Lucia CG* / 0081729

1 DAUNTLESS CLASS (PB)

PROTECTOR P 04

Displacement, tons: 11 full load
Dimensions, feet (metres): 40 × 14 × 4.3 *(12.2 × 4.3 × 1.3)*
Main machinery: 2 Caterpillar 3208TA diesels; 870 hp *(650 kW)*; 2 shafts
Speed, knots: 27. **Range, miles:** 600 at 18 kt
Complement: 4
Radars: Surface search: Raytheon; I-band.

Comment: Ordered October 1994. Built by SeaArk Marine under FMS funding and commissioned 9 October 1995.

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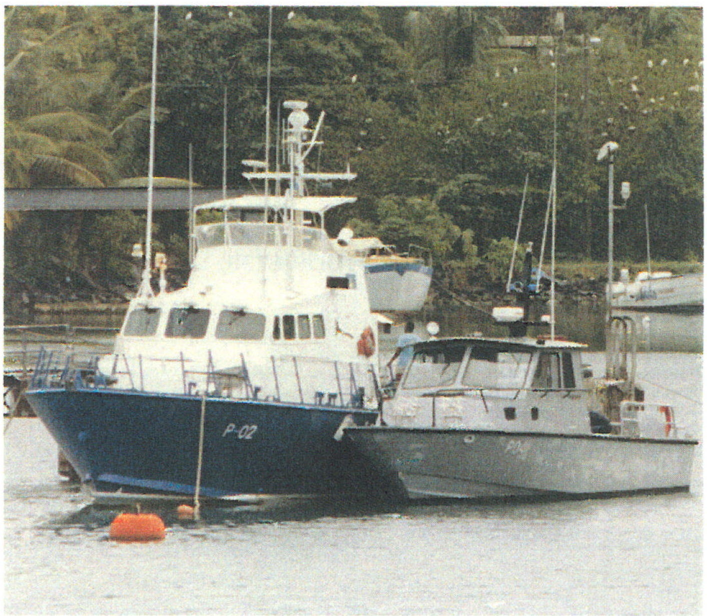

PROTECTOR (alongside Defender) *7/1997, St Lucia CG* / 0019078

3 HARBOUR CRAFT

P 05 **P 06** **P 07**

Comment: *P 05* is a 35 kt Hurricane RIB acquired in June 1993 and *P 06* and *P 07* are 45 kt Mako craft acquired in November 1995. *P 03* deleted in 1998.

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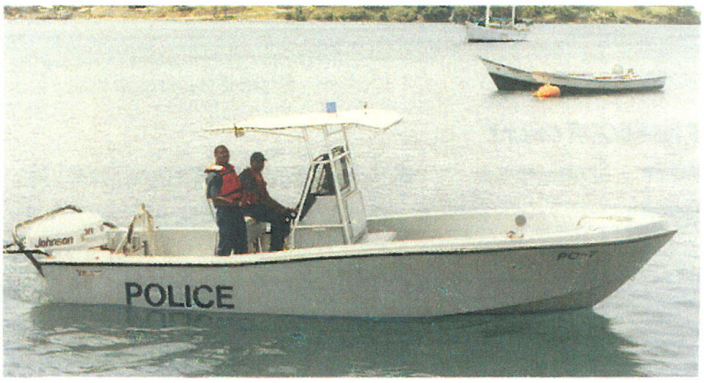

P 07 *7/1997, St Lucia CG* / 0019080

St Vincent and the Grenadines

Country Overview

St Vincent and the Grenadines gained independence in 1979; the British monarch, represented by a governor-general, is the head of state. Lying between St Lucia to the north and Grenada to the south, they form part of the Windward Islands in the Lesser Antilles chain and comprise the island of St Vincent (133 square miles) and the 32 northernmost islands and cays of the Grenadines group including (north to south): Bequia, Mustique, Canouan, Mayreau, Union Island, Palm (formerly Prune) Island, and Petit St Vincent. The capital, largest town, and principal port is Kingstown, St Vincent. An archipelagic state, territorial seas (12 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has been claimed but the limits are not defined.

Headquarters Appointments

Coast Guard Commander:
Lieutenant Commander Marcus Richards

Bases

Calliaqua, Bequia, Union Island

Personnel

2004: 56

COAST GUARD

Notes: A 920 Zodiac RHIB was donated by the US government in 2003.

1 SWIFTSHIPS 120 ft CLASS (PB)

CAPTAIN MULZAC SVG 01

Displacement, tons: 101
Dimensions, feet (metres): 120 × 25 × 7 *(36.6 × 7.6 × 2.1)*
Main machinery: 4 Detroit 12V-71TA diesels; 1,360 hp *(1.01 MW)* sustained; 4 shafts
Speed, knots: 21. **Range, miles:** 1,800 at 15 kt
Complement: 14 (4 officers)
Guns: 2—12.7 mm MGs. 2—7.62 mm MGs.
Radars: Surface search: Furuno 1411 Mk II; I/J-band.

Comment: Ordered in August 1986. Built by Swiftships, Morgan City and delivered 13 June 1987. Carries a RIB with a 40 hp outboard.
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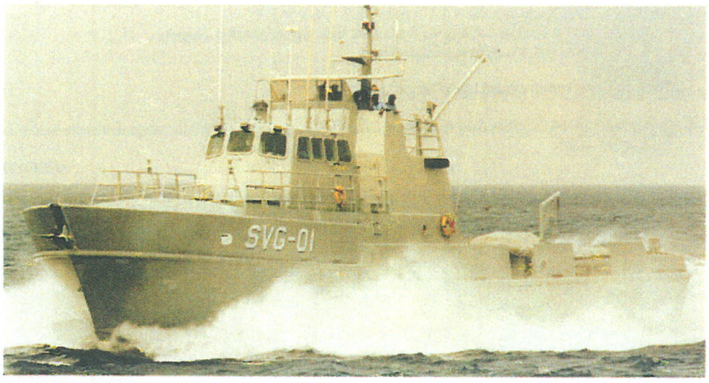

CAPTAIN MULZAC *6/1994, St Vincent Coast Guard* / 0081730

1 VOSPER THORNYCROFT 75 ft CLASS (PB)

GEORGE McINTOSH SVG 05

Displacement, tons: 70 full load
Dimensions, feet (metres): 75 × 19.5 × 8 *(22.9 × 6 × 2.4)*
Main machinery: 2 Caterpillar D 348 diesels; 1,450 hp *(1.08 MW)* sustained; 2 shafts
Speed, knots: 24.5. **Range, miles:** 1,000 at 11 kt; 600 at 20 kt
Complement: 11 (3 officers)
Guns: 1 Oerlikon 20 mm.
Radars: Surface search: Furuno 1411 Mk III; I/J-band.

Comment: Built by Vosper Thornycroft, Portchester. Handed over 23 March 1981. GRP hull.
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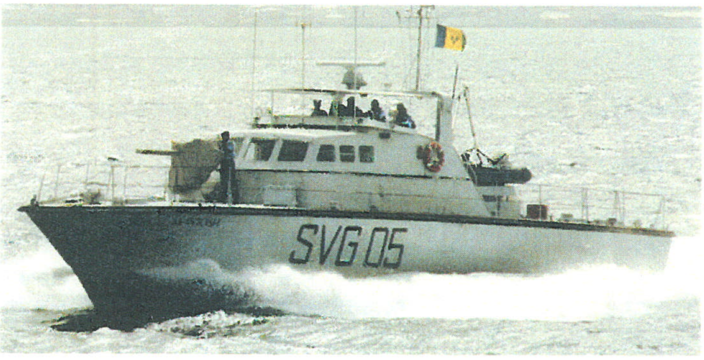

GEORGE McINTOSH *6/1992, St Vincent Coast Guard* / 0081731

4 HARBOUR CRAFT

SVG 03 **LARIKAI** SVG 06 **BRIGHTON** SVG 07 **CHATHAM BAY** SVG 08

Comment: *SVG 03* is a 30 kt Zodiac RIB. *SVG 06* and *07* are 23 kt Buhler craft acquired in 1991. *SVG 08* is a 30 kt Boston Whaler acquired in 1994. The Buhler craft are in poor condition.
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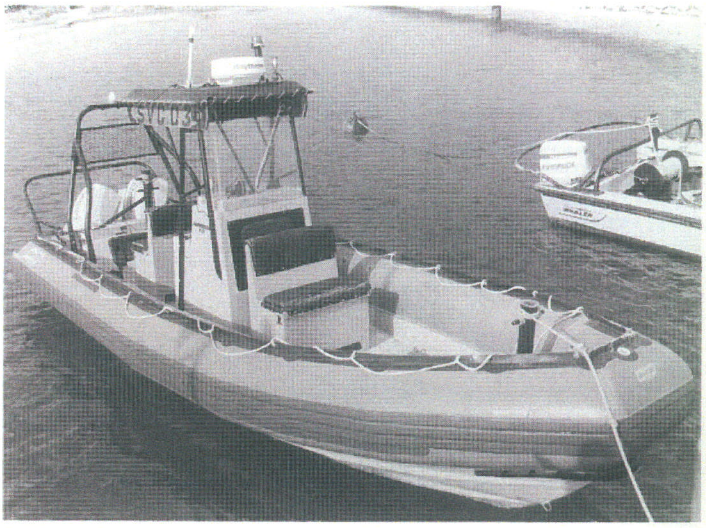
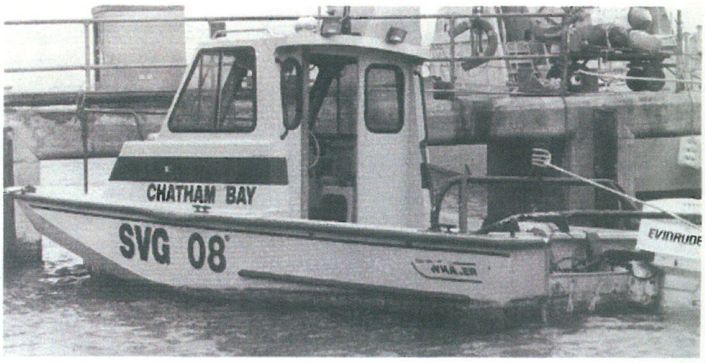


SVG 03 *2001, St Vincent Coast Guard* / 0109947



CHATHAM BAY *2001, St Vincent Coast Guard* / 0109948

1 DAUNTLESS CLASS (PB)

HAIROUN SVG 04

Displacement, tons: 11 full load
Dimensions, feet (metres): 40 × 14 × 4.3 *(12.2 × 4.3 × 1.3)*
Main machinery: 2 Caterpillar 3208TA diesels; 870 hp *(650 kW)*; 2 shafts
Speed, knots: 27. **Range, miles:** 600 at 18 kt
Complement: 4
Guns: 1—7.62 mm MG.
Radars: Surface search: Raytheon; I-band.

Comment: Ordered October 1984. Built by SeaArk Marine under FMS funding and commissioned 8 June 1995.
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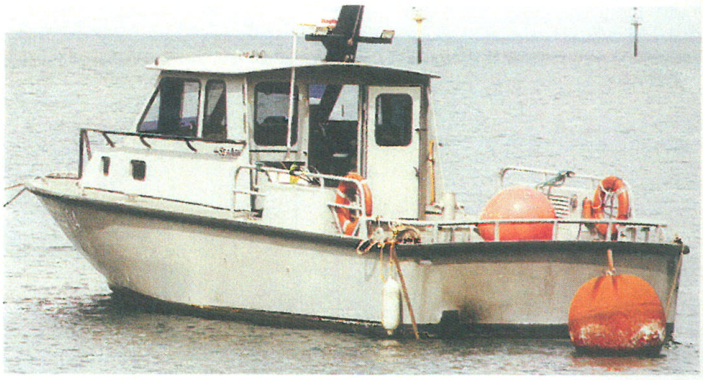
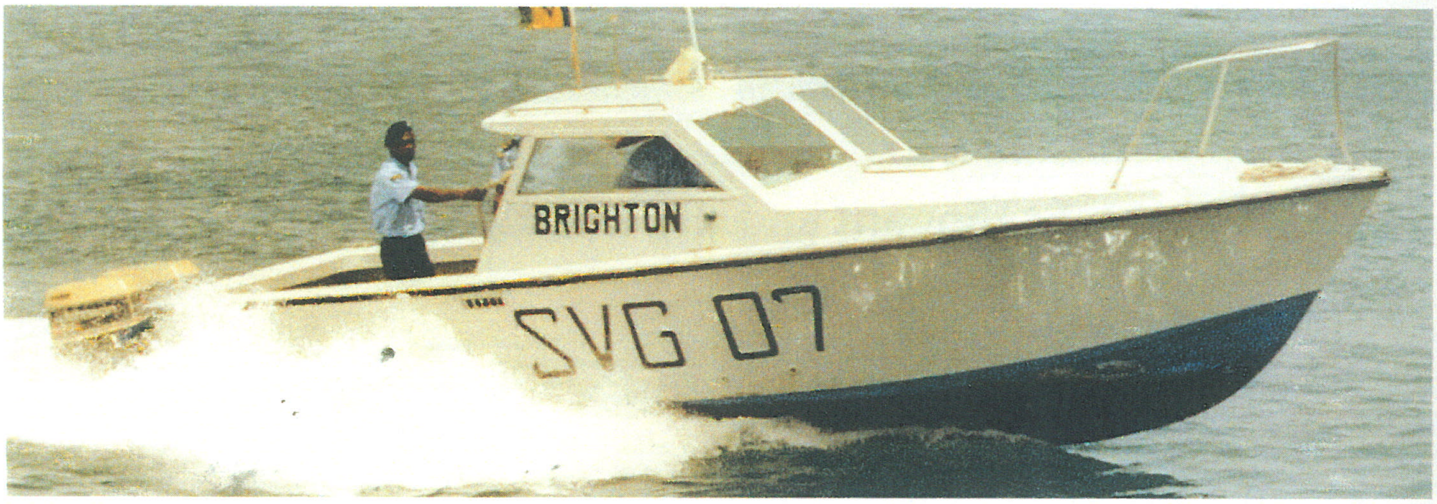


HAIROUN *7/1997* / 0019082



BRIGHTON *6/1991, St Vincent Coast Guard* / 0081732

Samoa

Country Overview

Samoa was a New Zealand-administered UN Trust territory until it became independent in 1962. At the same time a Treaty of Friendship delegated responsibility to New Zealand for foreign affairs. An island nation, it lies in the south Pacific Ocean, approximately midway between Hawaii and New Zealand, in the western portion of the Samoan archipelago. There are two main islands, Savai'i and Upolu, and several smaller islands, of which only two, Apolima and Manono, are inhabited. The capital and chief port is Apia on Upolu. An archipelagic state, territorial seas (12 n miles) are claimed. An Exclusive Economic Zone (EEZ) (200 n miles) is also claimed but limits have not been fully defined by boundary agreements.

Headquarters Appointments

Head of Maritime Division:
Commissioner Lorenese Neru
Marine Surveillance Adviser:
Lieutenant Commander J Narbutas, RAN

Bases

Apia

PATROL FORCES

1 PACIFIC CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
NAFANUA	—	Australian Shipbuilding Industries	5 Mar 1988

Displacement, tons: 165 full load
Dimensions, feet (metres): 103.3 × 26.6 × 6.9 *(31.5 × 8.1 × 2.1)*
Main machinery: 2 Caterpillar 3516TA diesels; 4,400 hp *(3.28 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 2,500 at 12 kt
Complement: 17 (3 officers)
Guns: Can carry 1 Oerlikon 20 mm and 2—7.62 mm MGs.
Radars: Surface search: Furuno 1011; I-band.

Comment: Under the Defence Co-operation Programme Australia has provided a number of these craft to Pacific islands. Training, operational and technical assistance is provided by the Royal Australian Navy. *Nafanua* ordered 3 October 1985. Refitted in 1996. Following the decision by the Australian government to extend the Pacific Patrol Boat programme, the ship will be due a life extension refit in 2004.

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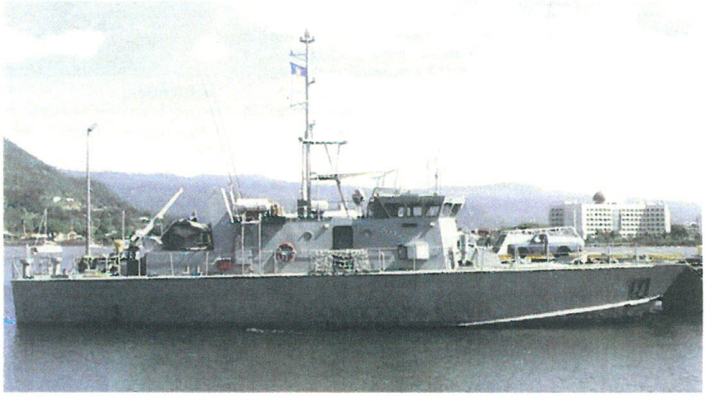

NAFANUA **2000, RAN** / 0105770

Saudi Arabia

Country Overview

The Kingdom of Saudi Arabia occupies most of the Arabian Peninsula and is bordered to the north by Jordan, Iraq, and Kuwait, to the south by Oman and the Republic of Yemen and to the east by Qatar and the United Arab Emirates. With an area of 864,869 square miles, it has coastlines with the Red Sea (972 n miles) and the Gulf (454 n miles). The capital and largest city is Riyadh while the principal ports are Jiddah and Yanbu al Bahr on the Red Sea, and the major oil-exporting ports of Al Jabayl, Ad Dammam, and Ras Tanura on the Gulf. Territorial seas (12 n miles) are claimed. An EEZ has not been claimed.

Headquarters Appointments

Chief of Naval Staff:
Vice Admiral Talal Salem Al Mofadhi
Commander Eastern Fleet:
Rear Admiral Mohammad Abdul Khalij Al Asseri
Commander Western Fleet:
Rear Admiral Dakheel Allah Ahmed Al-Wakdani
Director Frontier Force (Coast Guard):
Lieutenant General Mujib bin Muhammad Al-Qahtani

Personnel

(a) 2004: 13,500 officers and men (including 1,500 marines)
(b) Voluntary service

Bases

Naval HQ: Riyadh
Main bases: Jiddah (HQ Western Fleet), Al Jubail (HQ Eastern Fleet), Aziziah (Coast Guard). Jizan (Red Sea) building from May 1996
Minor bases (Naval and Coast Guard): Ras Tanura, Al Dammam, Yanbo, Ras al-Mishab, Al Wajh, Al Qatif, Haqi, Al Sharmah, Qizan, Duba

General

Funding for the Navy has the lowest defence service priority. New programmes are slow to come forward, and the operational status of existing ships is variable.

Command and Control

The USA provided an update of command and control capabilities during the period 1991-95, including a commercial datalink to improve interoperability.

Coast Defence

Truck-mounted Otomat batteries.

Coast Guard

Part of the Frontier Force under the Minister for Defence and Aviation. 5,500 officers and men. It is not always clear which ships belong to the Navy and which to the Coast Guard.

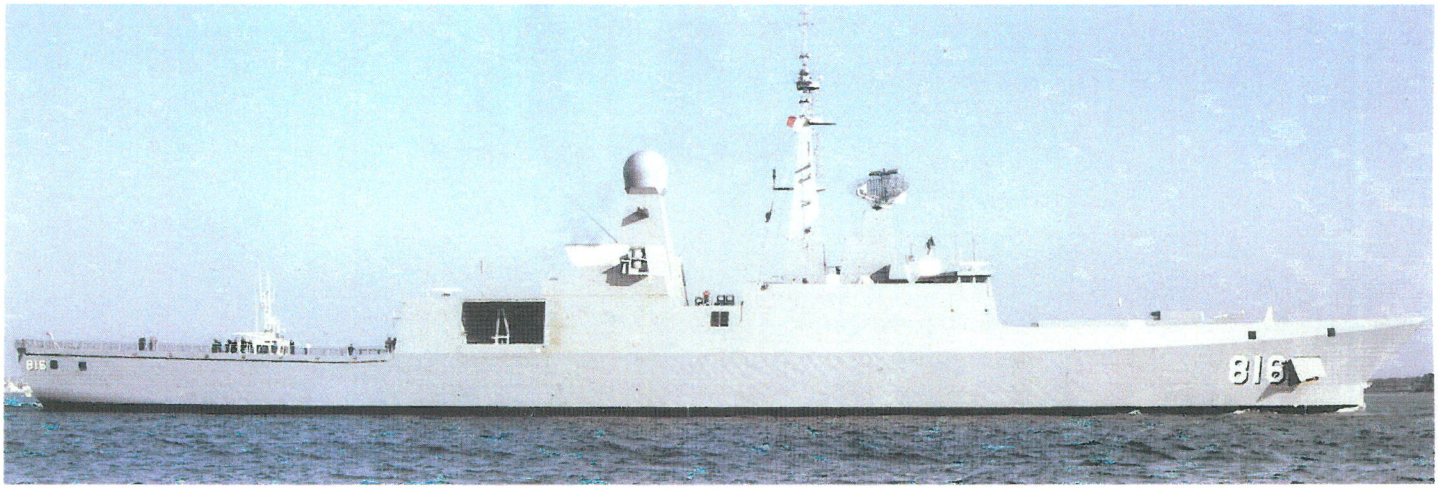
Strength of the Fleet

Type	*Active*	*Building*
Frigates	7	—
Corvettes—Missile	4	—
Fast Attack Craft—Missile	9	—
Patrol Craft	56	—
Minehunters	3	—
Minesweepers—Coastal	4	—
Replenishment Tankers	2	—

SUBMARINES

Notes: (1) Orders for patrol submarines are a low priority although training has been done in France and Pakistan.
(2) Interest has been shown in the acquisition of Midget Submarines.

FRIGATES

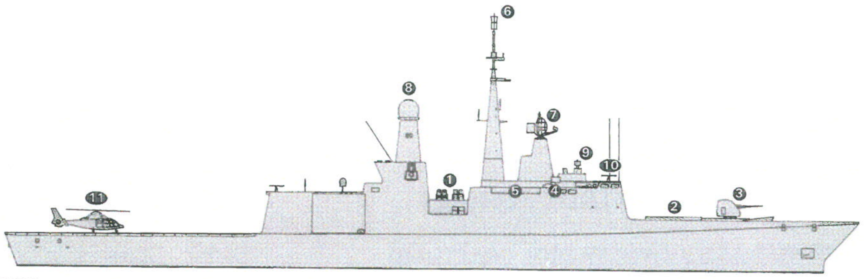

AL DAMMAM **12/2003*, H M Steele** / 0576439

3 AL RIYADH (MODIFIED LA FAYETTE) CLASS (TYPE F-3000S) (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
AL RIYADH	812	DCN, Lorient	29 Sep 1999	1 Aug 2000	26 July 2002
MAKKAH	814	DCN, Lorient	25 Aug 2000	20 July 2001	3 Apr 2004
AL DAMMAM	816	DCN, Lorient	26 Aug 2001	7 Sep 2002	2004

Displacement, tons: 4,650 full load
Dimensions, feet (metres): 438.43 × 56.4 × 13.5 *(133.6 × 17.2 × 4.1)*
Main machinery: CODAD; 4 SEMT-Pielstick 16 PA6 STC diesels; 28,000 hp(m) *(20.58 MW)* sustained; 2 shafts; LIPS cp props; bow thruster
Speed, knots: 25. **Range, miles:** 7,000 at 15 kt
Complement: 181 (25 officers); accommodation for 190

Missiles: SSM: 8 Aerospatiale MM 40 Block II Exocet ❶; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: Eurosam SAAM ❷; 2 octuple Sylver A43 VLS for Aster 15; command guidance active radar homing to 15 km *(8.1 n miles)* anti-missile, at 30 km *(16.2 n miles)* anti-aircraft. 16 missiles.
Guns: 1 DCN 3.9 in *(100 mm)* (812) ❸; 80 rds/min to 17 km *(9 n miles)* anti-surface; weight of shell 13.5 kg.
1 OTO Melera 3 in *(76 mm)*/62 Super Rapid (814, 816); 120 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Giat 15B 20 mm ❹; 800 rds/min to 3 km; weight of shell 0.1 kg.
2—12.7 mm MGs.
Torpedoes: 4—21 in *(533 mm)* tubes; ECAN F17P; anti-submarine; wire-guided active/passive homing to 20 km *(10.8 n miles)* at 40 kt; warhead 250 kg.
Countermeasures: Decoys: 2 Matra Dagaie Mk 2 ❺; 10-barrelled trainable launchers; chaff and IR flares. SLAT anti-wake homing torpedoes system (when available).
ESM: Thomson-CSF (DR 3000-S2) ❻; intercept. Sagem Telegon 10.
CESM: Thales Altesse; intercept.
ECM: 2 Thales Salamandre; jammers.



AL RIYADH

(Scale 1 : 1,200), Ian Sturton / 0526839

Combat data systems: Thales.
Weapons control: Thomson-CSF CTM radar/IR system.
Radars: Air search: Thales DRBV 26C Jupiter II ❼; D-band.
Surveillance/Fire control: Thomson-CSF Arabel 3D ❽; I/J-band.
Fire control: Thomson-CSF Castor II UJ ❾; J-band; range 15 km *(8 n miles)* for 1 m² target.
Navigation: 2 Racal Decca 1226 ❿; I-band. A second set fitted for helicopter control.
Sonars: Thomson Marconi CAPTAS 20; active low frequency; towed array.

Helicopters: Hangar and platform for Cougar-sized helicopter ⓫.

Programmes: A provisional order was made on 11 June 1989, but this was not finally confirmed until 19 November 1994 when a contract for two ships was authorised under the Sawari II programme. Thomson-CSF is the prime contractor. On 25 May 1997 an order for a third ship was placed together with a substantial enhancement of the weapon systems in all three. First steel cut 13 December 1997. Following handover, 812 started an eight month training programme which concluded in March 2003. 814 started sea trials on 9 September 2002 and 816 in mid-2003.
Structure: The design is a development of the French 'La Fayette' class. Some 10 m longer, space and weight included for two more octuple SAM launchers or A50 launcher for Aster 30. Provision is made for a larger NH 90 type helicopter in the future, DCN Samahé helo handling system. STAF stabilisers.
Operational: OTHT link for helicopters and Air Force F-15s.

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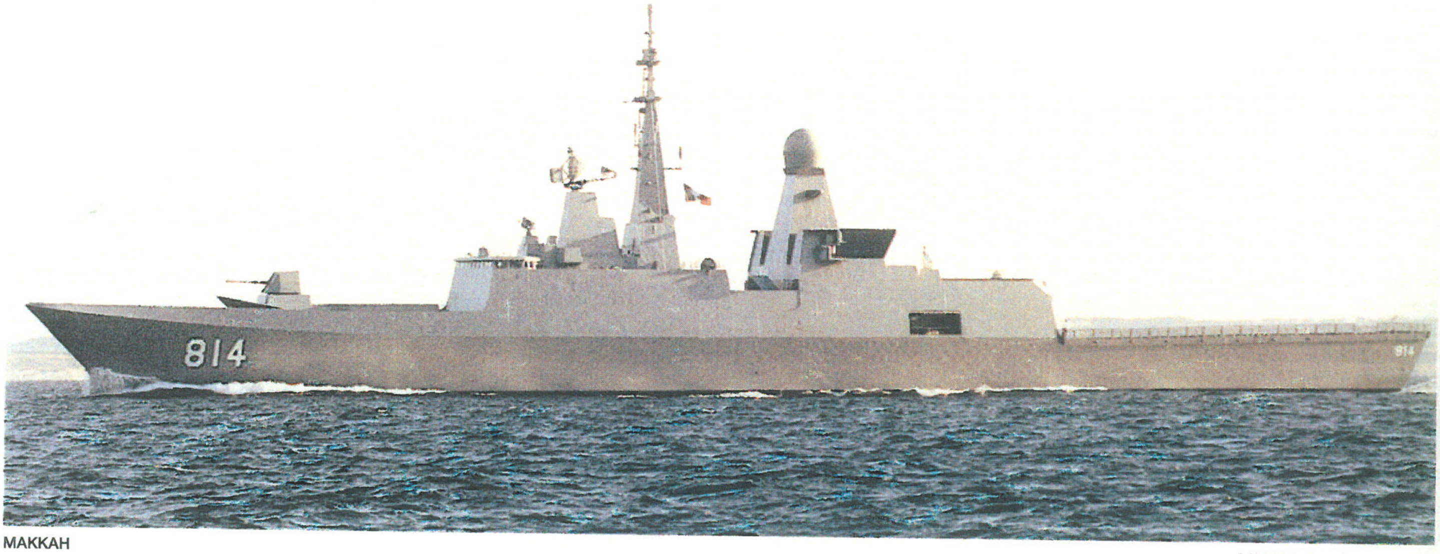
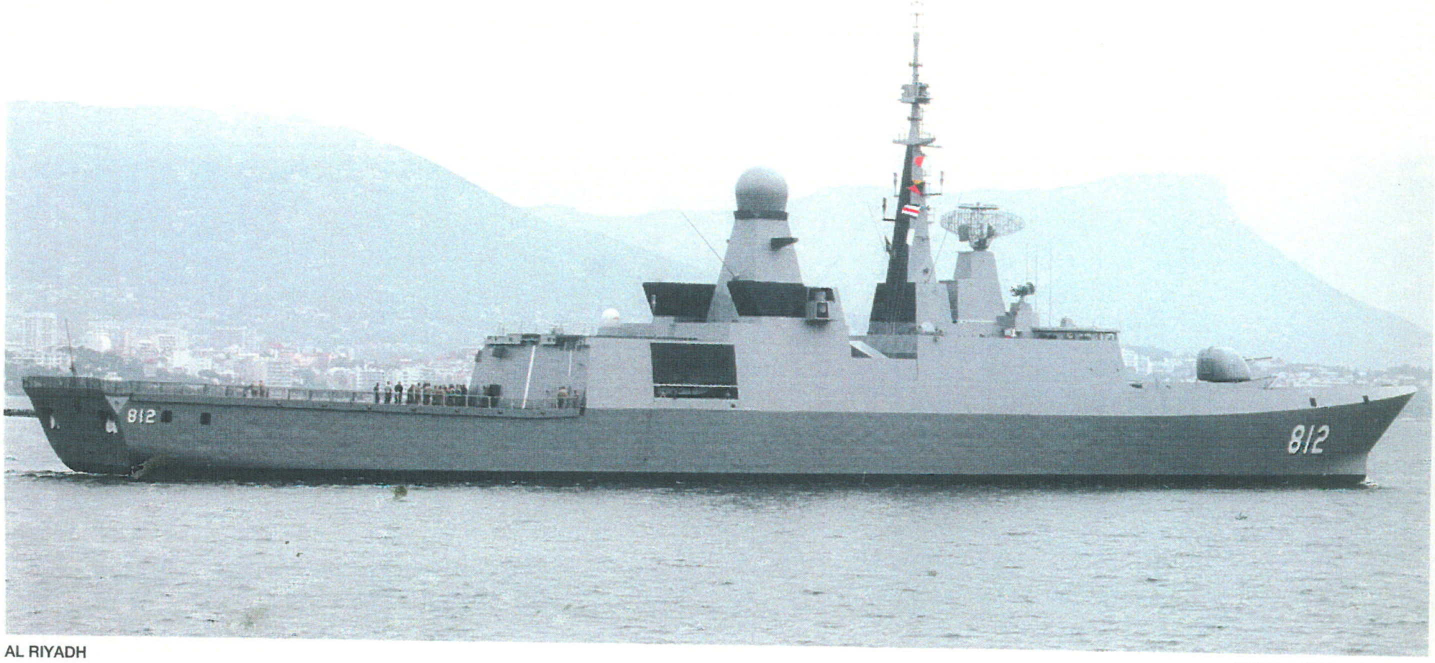


MAKKAH

9/2003, B Prézelin* / 0568854



AL RIYADH

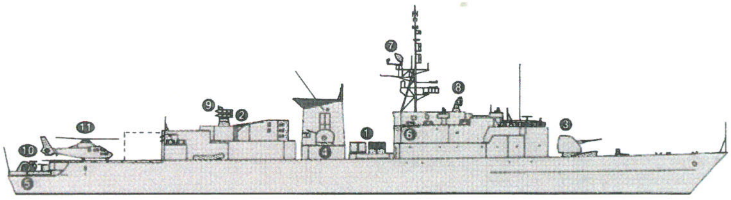
9/2002, H M Steele / 0533299

4 MADINA (TYPE F 2000S) CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
MADINA	702	Lorient (DTCN)	15 Oct 1981	23 Apr 1983	4 Jan 1985
HOFOUF	704	CNIM, Seyne-sur-Mer	14 June 1982	24 June 1983	31 Oct 1985
ABHA	706	CNIM, Seyne-sur-Mer	7 Dec 1982	23 Dec 1983	4 Apr 1986
TAIF	708	CNIM, Seyne-sur-Mer	1 Mar 1983	25 May 1984	29 Aug 1986

Displacement, tons: 2,000 standard; 2,870 full load
Dimensions, feet (metres): 377.3 × 41 × 16 (sonar) *(115 × 12.5 × 4.9)*
Main machinery: CODAD; 4 SEMT-Pielstick 16 PA6 280V BTC diesels; 38,400 hp(m) *(28 MW)* sustained; 2 shafts
Speed, knots: 30
Range, miles: 8,000 at 15 kt; 6,500 at 18 kt
Complement: 179 (15 officers)

Missiles: SSM: 8 OTO Melara/Matra Otomat Mk 2 (2 quad) ①; active radar homing to 160 km *(86.4 n miles)* at 0.9 Mach; warhead 210 kg; sea-skimmer for last 4 km *(2.2 n miles)*. ERATO system allows mid-course guidance by ship's helicopter.
SAM: Thomson-CSF Crotale Naval octuple launcher ②; command line of sight guidance; radar/IR homing to 13 km *(7 n miles)* at 2.4 Mach; warhead 14 kg; 26 missiles.
Guns: 1 Creusot-Loire 3.9 in *(100 mm)*/55 compact Mk 2 ③; 20/45/90 rds/min to 17 km *(9.3 n miles)* weight of shell 13.5 kg. 4 Breda 40 mm/70 (2 twin) ④; 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
Torpedoes: 4—21 in *(533 mm)* tubes ⑤. ECAN F17P; anti-submarine; wire-guided; active/passive homing to 20 km *(10.8 n miles)* at 40 kt; warhead 250 kg.
Countermeasures: Decoys: CSEE Dagaie double trainable mounting ⑥; IR flares and chaff; H/J-band.
ESM: Thomson-CSF DR 4000; intercept; HF/DF.
ECM: Thomson-CSF Janet; jammer.



MADINA

(Scale 1 : 1,200), Ian Sturton

Combat data systems: Thomson-CSF TAVITAC action data automation; capability for Link W.
Weapons control: Vega system. 3 CSEE Naja optronic directors. Alcatel DLT for torpedoes.
Radars: Air/surface search/IFF: Thomson-CSF Sea Tiger (DRBV 15) ⑦; E/F-band; range 110 km *(60 n miles)* for 2 m^2 target.
Navigation: 2 Racal Decca TM 1226; I-band.
Fire control: Thomson-CSF Castor IIB/C ⑧; I/J-band; range 15 km *(8 n miles)* for 1 m^2 target.
Thomson-CSF DRBC 32 ⑨; I/J-band (for SAM).
Sonars: Thomson Sintra Diodon TSM 2630; hull-mounted; active search and attack with integrated Sorel VDS ⑩; 11, 12 or 13 kHz.

Helicopters: 1 SA 365F Dauphin 2 ⑪.

Programmes: Ordered in 1980, the major part of the Sawari I contract. Agreement for France to provide supplies and technical help.
Modernisation: The class have been upgraded by DCN Toulon, *Madina* completed in April 1997. *Hofouf* in mid-1998. *Abha* in late 1999, and *Taif* in March 2000. Improvements included updating TAVITAC, Otomat missiles, both sonars and fitting a Samahé 110 helo handling system.
Structure: Fitted with Snach/Saphir folding fin stabilisers.
Operational: Navigation: CSEE Sylosat. Helicopter can provide mid-course guidance for SSM. All based at Jiddah. Only a few weeks a year are spent at sea.

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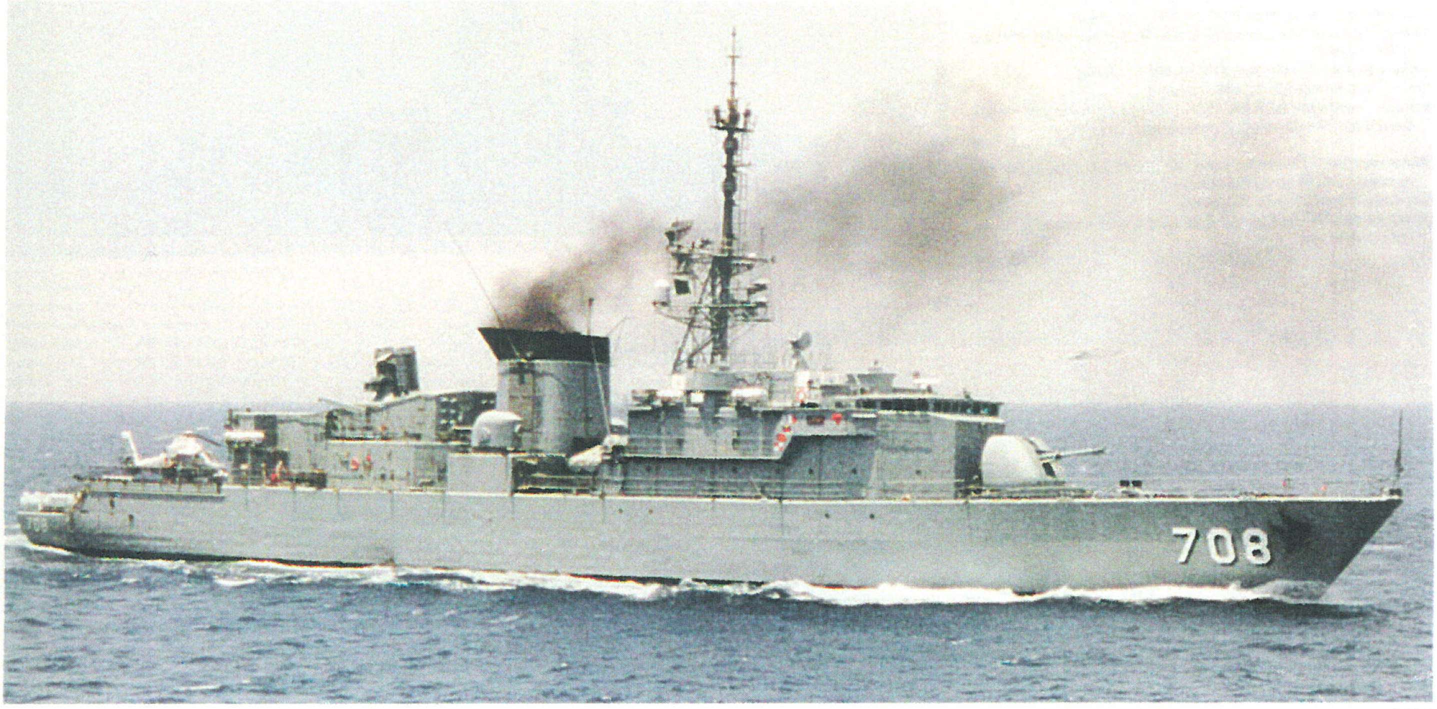
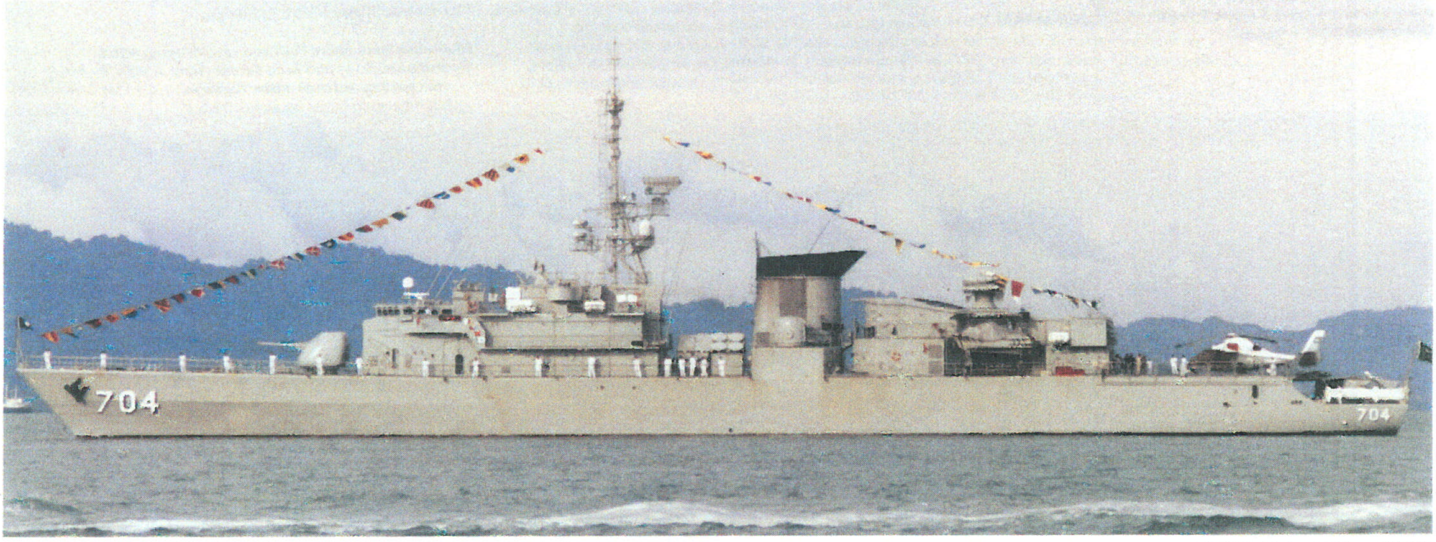


TAIF

6/2002 */ 0526835*



HOFOUF

9/2003*, Hartmut Ehlers */ 0567898*

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CORVETTES

4 BADR CLASS (FSG)

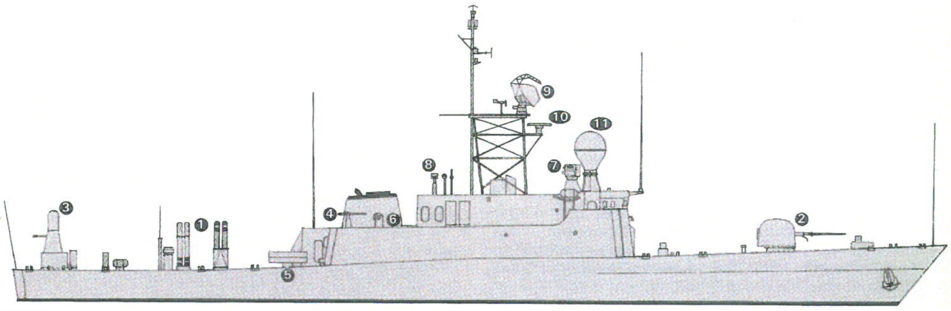
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
BADR	612	Tacoma Boatbuilding Co, Tacoma	6 Oct 1979	26 Jan 1980	30 Nov 1980
AL YARMOOK	614	Tacoma Boatbuilding Co, Tacoma	3 Jan 1980	13 May 1980	18 May 1981
HITTEEN	616	Tacoma Boatbuilding Co, Tacoma	19 May 1980	5 Sep 1980	3 Oct 1981
TABUK	618	Tacoma Boatbuilding Co, Tacoma	22 Sep 1980	18 June 1981	10 Jan 1983

Displacement, tons: 870 standard; 1,038 full load
Dimensions, feet (metres): 245 × 31.5 × 8.9 *(74.7 × 9.6 × 2.7)*
Main machinery: CODOG; 1 GE LM 2500 gas turbine; 23,000 hp *(17.2 MW)* sustained; 2 MTU 12V 652 TB91 diesels; 3,470 hp(m) *(2.55 MW)* sustained; 2 shafts; cp props
Speed, knots: 30 gas; 20 diesels. **Range, miles:** 4,000 at 20 kt
Complement: 58 (7 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ①; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
Guns: 1 FMC/OTO Melara 3 in *(76 mm)*/62 Mk 75 Mod 0 ②; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
1 General Electric/General Dynamics 20 mm 6-barrelled Vulcan Phalanx ③; 3,000 rds/min combined to 2 km.
2 Oerlikon 20 mm/80 ④.
1—81 mm mortar. 2—40 mm Mk 19 grenade launchers.
Torpedoes: 6—324 mm US Mk 32 (2 triple) tubes ⑤. Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled fixed Mk 36 ⑥; IR flares and chaff to 4 km *(2.2 n miles)*.
ESM: SLQ-32(V)1 ⑦; intercept.
Weapons control: Mk 24 optical director ⑧. Mk 309 for torpedoes. Mk 92 Mod 5 GFCS. FSI Safire FLIR.
Radars: Air search: Lockheed SPS-40B ⑨; B-band; range 320 km *(175 n miles)*.
Surface search: ISC Cardion SPS-55 ⑩; I/J-band.
Fire control: Sperry Mk 92 ⑪; I/J-band.
Sonars: Raytheon SQS-56 (DE 1164); hull-mounted; active search and attack; medium frequency.

Modernisation: Refitting done in Saudi Arabia with US assistance. FLIR being fitted from 1998.
Structure: Fitted with fin stabilisers.
Operational: All based at Al Jubail on the east coast and spend little time at sea.

UPDATED



BADR *(Scale 1 : 600), Ian Sturton*

AL YARMOOK *2/1997, van Ginderen Collection* / 0019085

PATROL FORCES

9 AL SIDDIQ CLASS (PGGF)

Name	*No*	*Builders*	*Launched*	*Commissioned*
AL SIDDIQ	511	Peterson, WI	22 Sep 1979	15 Dec 1980
AL FAROUQ	513	Peterson, WI	17 May 1980	22 June 1981
ABDUL AZIZ	515	Peterson, WI	23 Aug 1980	3 Sep 1981
FAISAL	517	Peterson, WI	15 Nov 1980	23 Nov 1981
KHALID	519	Peterson, WI	23 Mar 1981	11 Jan 1982
AMYR	521	Peterson, WI	13 June 1981	21 June 1982
TARIQ	523	Peterson, WI	23 Sep 1981	11 Aug 1982
OQBAH	525	Peterson, WI	12 Dec 1981	18 Oct 1982
ABU OBAIDAH	527	Peterson, WI	3 Apr 1982	6 Dec 1982

Displacement, tons: 495 full load
Dimensions, feet (metres): 190.5 × 26.5 × 6.6 *(58.1 × 8.1 × 2)*
Main machinery: CODOG; 1 GE LM 2500 gas turbine; 23,000 hp *(17.2 MW)* sustained; 2 MTU 12V 652 TB91 diesels; 3,470 hp(m) *(2.55 MW)* sustained; 2 shafts; cp props
Speed, knots: 38 gas; 25 diesel. **Range, miles:** 2,900 at 14 kt
Complement: 38 (5 officers)

Missiles: SSM: 4 McDonnell Douglas Harpoon (2 twin) launchers; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
Guns: 1 FMC/OTO Melara 3 in *(76 mm)*/62 Mk 75 Mod 0; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
1 General Electric/General Dynamics 20 mm 6-barrelled Vulcan Phalanx; 3,000 rds/min combined to 2 km.
2 Oerlikon 20 mm/80; 800 rds/min to 2 km anti-aircraft.
2—81 mm mortars. 2—40 mm Mk 19 grenade launchers.

Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled fixed Mk 36; IR flares and chaff to 4 km *(2.2 n miles)*.
ESM: SLQ-32(V)1; intercept.
Weapons control: Mk 92 mod 5 GFCS. FSI Safire FLIR. Link W.
Radars: Surface search: ISC Cardion SPS-55; I/J-band.
Fire control: Sperry Mk 92; I/J-band.

Modernisation: Safire FLIR and Link W being fitted.
Operational: *Amyr* and *Tariq* operate from Jiddah, the remainder are based at Al Jubail. *Faisal* damaged in the Gulf War in 1991 but was operational again in 1994.

VERIFIED

ABU OBAIDAH *6/2001, Ships of the World* / 0126360

17 HALTER TYPE (COASTAL PATROL CRAFT) (PB)

52-68

Displacement, tons: 56 full load
Dimensions, feet (metres): 78 × 20 × 5.8 *(23.8 × 6.1 × 1.8)*
Main machinery: 2 Detroit 16V-92TA diesels; 1,380 hp *(1.03 MW)* sustained; 2 shafts
Speed, knots: 28. **Range, miles:** 1,200 at 12 kt
Complement: 8 (2 officers)
Guns: 2—25 mm Mk 38. 2—7.62 mm MGs.
Radars: Surface search: Raytheon SPS-64; I-band.

Comment: Ordered from Halter Marine 17th February 1991. Aluminium construction. Last delivered in January 1993. Same type for Philippines.

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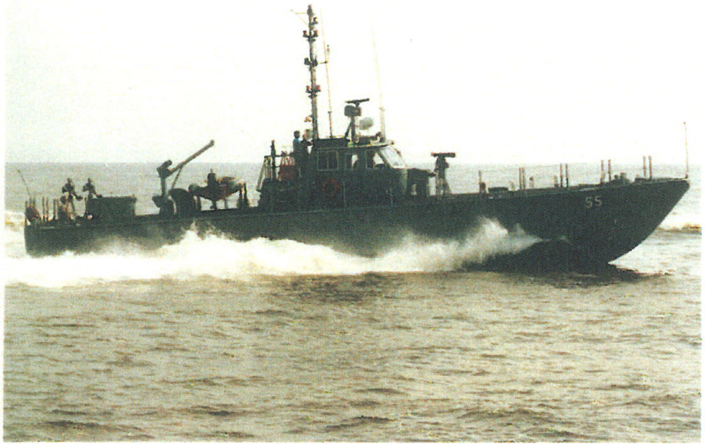

HALTER TYPE *8/1990, Trinity Marine* / 0080563

39 SIMONNEAU 51 TYPE (INSHORE PATROL CRAFT) (PBI)

Displacement, tons: 22 full load
Dimensions, feet (metres): 51.8 × 15.7 × 5.9 *(15.8 × 4.8 × 1.8)*
Main machinery: 4 outboards; 2,400 hp(m) *(1.76 MW)*
Speed, knots: 33. **Range, miles:** 375 at 25 kt
Guns: 1—12.7 mm MG. 2—7.62 mm MGs.
Radars: Surface search: Furuno; I-band.

Comment: First 20 ordered from France in June 1988 and delivered in 1989-90. A second batch of 20 ordered in 1991. Aluminium construction. Used by naval commandos. These craft were also reported as Panhards. One deleted so far.

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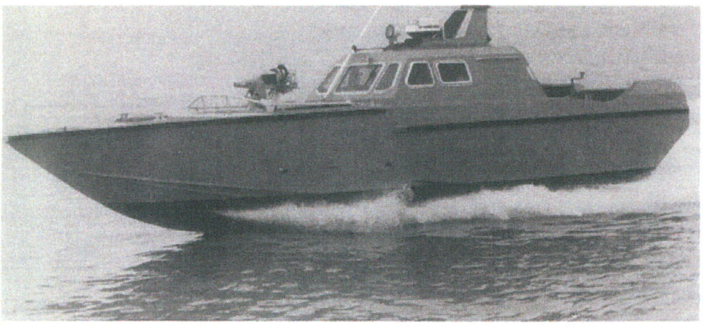

SIMONNEAU TYPE *1989, Simonneau Marine*

SHIPBORNE AIRCRAFT

Numbers/Type: 15/6 Aerospatiale AS 365F/AS 365N Dauphin 2.
Operational speed: 140 kt *(260 km/h)*.
Service ceiling: 15,000 ft *(4,575 m)*.
Range: 410 n miles *(758 km)*.
Role/Weapon systems: AS 365F is the ASV/ASW helicopter; procured for embarked naval aviation force; surface search/attack is the primary role. Sensors: Thomson-CSF Agrion 15 radar; Crouzet MAD. Weapons: ASV; four AS/15TT missiles. ASW; 2 Mk 46 torpedoes. AS 365N is for SAR. Sensors: Omera DRB 32 search radar. Weapons: Unarmed.

VERIFIED

LAND-BASED MARITIME AIRCRAFT

Notes: (1) Six P-3C Orion or CASA CN-235 may be acquired in due course.
(2) Five Boeing E3-A AEW aircraft in service with Air Force.

Numbers/Type: 18 Aerospatiale AS 332SC Super Puma.
Operational speed: 150 kt *(280 km/h)*.
Service ceiling: 15,090 ft *(4,600 m)*.
Range: 335 n miles *(620 km)*.
Role/Weapon systems: First pair delivered in August 1989. Total of 18 by the end of 1996. Shared with the Coast Guard. Sensors: 12 have Omera search radar Safire AAQ-22 FLIR from 1998. Weapons: ASV; six have Giat 20 mm cannon; 12 have AM39 Exocet or Sea Eagle ASM.

VERIFIED

MINE WARFARE FORCES

4 ADDRIYAH (MSC 322) CLASS (MINESWEEPERS/HUNTERS—COASTAL) (MHSC)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ADDRIYAH	MSC 412	Peterson, WI	20 Dec 1976	6 July 1978
AL QUYSUMAH	MSC 414	Peterson, WI	26 May 1977	15 Aug 1978
AL WADEEAH	MSC 416	Peterson, WI	6 Sep 1977	7 Sep 1979
SAFWA	MSC 418	Peterson, WI	7 Dec 1977	2 Oct 1979

Displacement, tons: 320 standard; 407 full load
Dimensions, feet (metres): 153 × 26.9 × 8.2 *(46.6 × 8.2 × 2.5)*
Main machinery: 2 Waukesha L1616 diesels; 1,200 hp *(895 kW)*; 2 shafts
Speed, knots: 13
Complement: 39 (4 officers)
Guns: 1 Oerlikon 20 mm.
Radars: Surface search: ISC Cardion SPS-55; I/J-band.
Sonars: GE SQQ-14; VDS; active minehunting; high frequency.

Comment: Ordered on 30 September 1975 under the International Logistics Programme. Wooden structure. Fitted with fin stabilisers, wire and magnetic sweeps and also for minehunting. *Addriyah* based at Jiddah, the remainder at Al Jubail. Expected to be replaced by arrival of Sandowns but all are still in service mostly as patrol craft.

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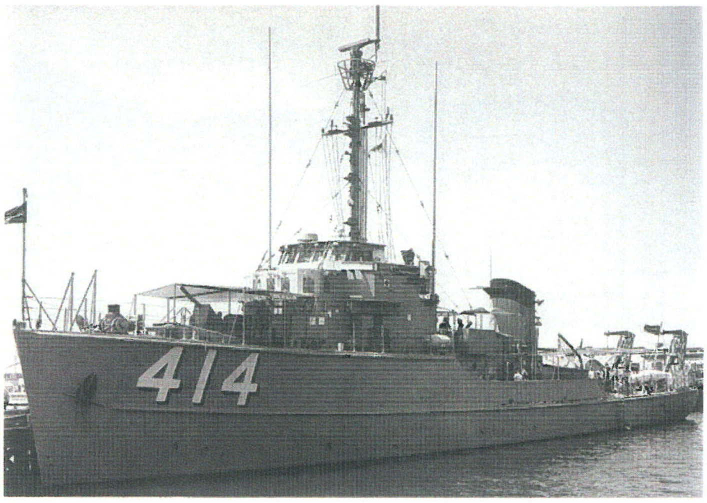

AL QUYSUMAH *6/1996, van Ginderen Collection* / 0019090

3 AL JAWF (SANDOWN) CLASS (MINEHUNTERS—COASTAL) (MHC)

Name	*No*	*Builders*	*Launched*	*Commissioned*
AL JAWF	420	Vosper Thornycroft	2 Aug 1989	12 Dec 1991
SHAQRA	422	Vosper Thornycroft	15 May 1991	7 Feb 1993
AL KHARJ	424	Vosper Thornycroft	8 Feb 1993	7 Aug 1997

Displacement, tons: 450 standard; 480 full load
Dimensions, feet (metres): 172.9 × 34.4 × 6.9 *(52.7 × 10.5 × 2.1)*
Main machinery: 2 Paxman 6RP200E diesels; 1,500 hp *(1.12 MW)* sustained; Voith-Schneider propulsion; 2 shafts; 2 Schöttel bow thrusters
Speed, knots: 13 diesels; 6 electric drive. **Range, miles:** 3,000 at 12 kt
Complement: 34 (7 officers) plus 6 spare berths
Guns: 2 Electronics & Space Emerlec 30 mm (twin); 1,200 rds/min combined to 6 km *(3.3 n miles)*; weight of shell 0.35 kg.
Countermeasures: Decoys: 2 Loral Hycor SRBOC Mk 36 Mod 1 6-barrelled chaff launchers.
ESM: Thomson-CSF Shiploc; intercept.
MCM: ECA mine disposal system; 2 PAP 104 Mk 5.
Combat data systems: Plessey Nautis M action data automation.
Weapons control: Contraves TMEO optronic director (Seahawk Mk 2).
Radars: Navigation: Kelvin Hughes Type 1007; I-band.
Sonars: Plessey/MUSL Type 2093; VDS; high frequency.

Comment: Three ordered 2 November 1988 from Vosper Thornycroft. Option for three more unlikely to be taken up. GRP hulls. Combines vectored thrust units with bow thrusters and Remote Controlled Mine Disposal System (RCMDS). *Al Jawf* sailed for Saudi Arabia in November 1995, *Shaqra* in November 1996, and *Al Kharj* in August 1997. All based at Al Jubail.

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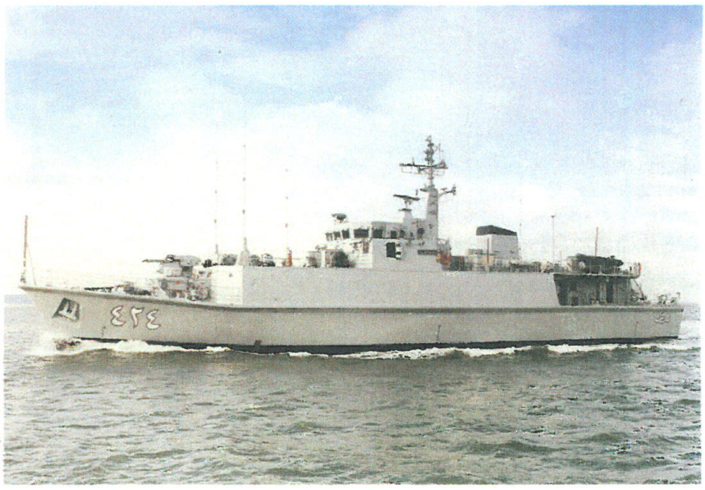

AL KHARJ *8/1997, Vosper Thornycroft* / 0050091

AUXILIARIES

2 MOD DURANCE CLASS (REPLENISHMENT SHIPS) (AORH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
BORAIDA	902	La Ciotat, Marseilles	22 Jan 1983	29 Feb 1984
YUNBOU	904	La Ciotat, Marseilles	20 Oct 1984	29 Aug 1985

Displacement, tons: 11,200 full load
Dimensions, feet (metres): 442.9 × 61.3 × 22.9 *(135 × 18.7 × 7)*
Main machinery: 2 SEMT-Pielstick 14 PC2.5 V 400 diesels; 18,200 hp(m) *(13.4 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 20.5. **Range, miles:** 7,000 at 15 kt
Complement: 129 plus 11 trainees
Cargo capacity: 4,350 tons diesel; 350 tons AVCAT; 140 tons fresh water; 100 tons victuals; 100 tons ammunition; 70 tons spares
Guns: 4 Breda Bofors 40 mm/70 (2 twin); 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
Weapons control: 2 CSEE Naja optronic directors. 2 CSEE Lynx optical sights.
Radars: Navigation: 2 Decca; I-band.
Helicopters: 2 SA 365F Dauphin or 1 AS 332SC Super Puma.

Comment: Contract signed October 1980 as part of Sawari I programme. Both upgraded by DCN at Toulon; *Boraida* in 1996/97, followed by *Yunbou*, in 1997/98. Refuelling positions: Two alongside, one astern. Also serve as training ships and as depot and maintenance ships. Helicopters can have ASM or ASW armament. Both based at Jiddah.

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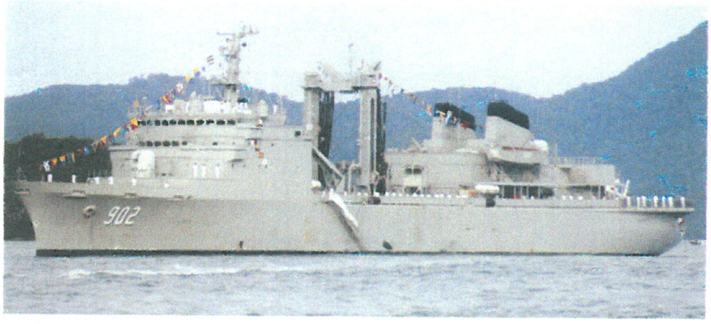

BORAIDA *9/2003*, Hartmut Ehlers* / 0567897

YUNBOU *1/1998* / 0016635

4 LCU 1610 CLASS (TRANSPORTS) (YFU)

AL QIAQ (ex-*SA 310*) 212
AL SULAYEL (ex-*SA 311*) 214
AL ULA (ex-*SA 312*) 216
AFIF (ex-*SA 313*) 218

Displacement, tons: 375 full load
Dimensions, feet (metres): 134.9 × 29 × 6.1 *(41.1 × 8.8 × 1.9)*
Main machinery: 4 GM diesels; 1,000 hp *(746 kW)*; 2 Kort nozzles
Speed, knots: 11. **Range, miles:** 1,200 at 8 kt
Complement: 14 (2 officers)
Military lift: 170 tons; 20 troops
Guns: 2—12.7 mm MGs.
Radars: Navigation: Marconi LN66; I-band.

Comment: Built by Newport Shipyard, Rhode Island. Transferred from US June/July 1976. Based at Al Jubail.

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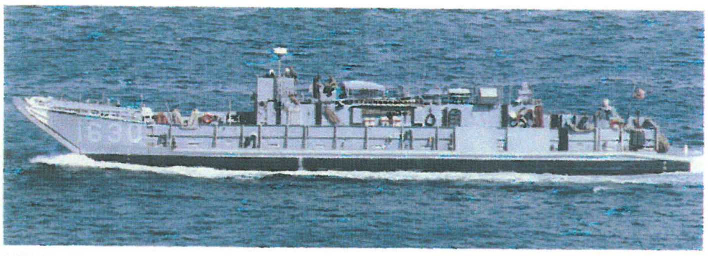

LCU 1610 (US colours) *9/1997, Hachiro Nakai* / 0016483

4 LCM 6 CLASS (TRANSPORTS) (YFU)

DHEBA 220 **UMLUS** 222 **AL LEETH** 224 **AL QUONFETHA** 226

Displacement, tons: 62 full load
Dimensions, feet (metres): 56.2 × 14 × 3.9 *(17.1 × 4.3 × 1.2)*
Main machinery: 2 GM diesels; 450 hp *(336 kW)*; 2 shafts
Speed, knots: 9. **Range, miles:** 130 at 9 kt
Complement: 5
Military lift: 34 tons or 80 troops
Guns: 2—40 mm Mk 19 grenade launchers.

Comment: Four transferred July 1977 and four in July 1980. The first four have been cannibalised for spares. Based at Jiddah.

VERIFIED

TUGS

13 COASTAL TUGS (YTB/YTM)

RADHWA 1-6, 14-15 **TUWAIG** 113 **DAREEN** 111 **RADHWA 12, 16, 17**

Comment: *Radhwa 12, 16* and *17* are 43 m YTMs built in 1982-83. *Tuwaig* and *Dareen* are ex-US YTB transferred in October 1975. These two are used to tow targets for weapons firing exercises and are based at Al Jubail and Damman respectively. The remainder are all of about 35 m built in Singapore and the Netherlands between 1981 and 1983.

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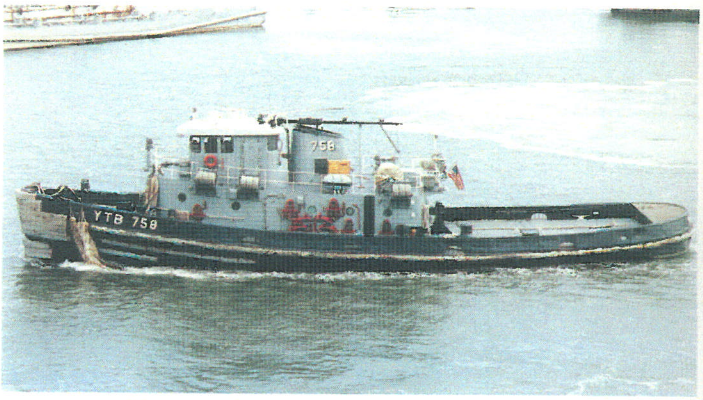

YTB TYPE (US colours) *9/1992, Jürg Kürsener* / 0080564

ROYAL YACHTS

1 ROYAL YACHT (YACH)

Name	*No*	*Builders*	*Commissioned*
AL YAMAMAH	—	Elsinore, Denmark	Feb 1981

Displacement, tons: 1,660 full load
Dimensions, feet (metres): 269 × 42.7 × 10.8 *(82 × 13 × 3.3)*
Main machinery: 2 MTU 12V 1163 TB82 diesels; 6,000 hp(m) *(4.41 MW)*; 2 shafts; cp props; bow thruster; 300 hp(m) *(221 kW)*
Speed, knots: 19
Complement: 42 plus 56 spare
Helicopters: Platform for 1 medium.

Comment: Ordered by Iraq but not delivered because of the war with Iran. Given to Saudi Arabia by Iraq in 1988. Based at Dammam.

UPDATED

1 PEGASUS CLASS (HYDROFOIL) (YAGJ)

AL AZIZIAH

Displacement, tons: 115 full load
Dimensions, feet (metres): 89.9 × 29.9 × 6.2 *(27.4 × 9.1 × 1.9)*
Main machinery: 2 Allison 501-KF20A gas turbines; 8,660 hp *(6.46 MW)* sustained; 2 waterjets (foilborne); 2 Detroit 8V92 diesels; 606 hp *(452 kW)* sustained; 2 shafts (hullborne)
Speed, knots: 46. **Range, miles:** 890 at 42 kt
Guns: 2 General Electric 20 mm Sea Vulcan.
Weapons control: Kollmorgen GFCS; Mk 35 optronic director.

Comment: Ordered in 1984 from Lockheed and subcontracted to Boeing, Seattle; delivered in August 1985. Mostly used as a tender to the Royal Yacht.

UPDATED

1 ROYAL YACHT (YACH)

Name	*No*	*Builders*	*Commissioned*
ABDUL AZIZ	—	Halsingør Waerft, Denmark	12 June 1984

Displacement, tons: 5,200 full load
Measurement, tons: 1,450 dwt
Dimensions, feet (metres): 482.2 × 59.2 × 16.1 *(147 × 18 × 4.9)*
Main machinery: 2 Lindholmen-Pielstick 12 PC2.5 V diesels; 15,600 hp(m) *(11.47 MW)* sustained; 2 shafts
Speed, knots: 22
Complement: 65 plus 4 Royal berths and 60 spare
Helicopters: 1 Bell 206B JetRanger type.

Comment: Completed March 1983 for subsequent fitting out at Vosper's Ship Repairers, Southampton. Helicopter hangar set in hull forward of bridge-covers extend laterally to form pad. Swimming pool. Stern ramp leading to garage. Based at Jiddah. Operated by the Coast Guard.

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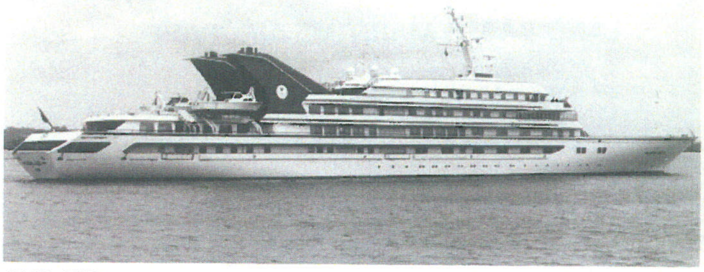

ABDUL AZIZ *5/1994, van Ginderen Collection*

COAST GUARD

Notes: Three 32 m fireboats *Jubail I, Jubail 2* and *Jubail 3,* entered service in 1982.

2 SEA GUARD CLASS (WPBF)

AL RIYADH 304 **ZULURAB** 305

Displacement, tons: 56 full load
Dimensions, feet (metres): 73.8 × 18.4 × 5.6 *(22.5 × 5.6 × 1.7)*
Main machinery: 2 MTU 12V 331 TC92 diesels; 2,920 hp(m) *(21.46 MW)*; 2 shafts
Speed, knots: 35
Complement: 10
Guns: 2 Giat 20 mm (twin). 2—7.62 mm MGs.
Radars: Surface search: Racal Decca; I-band.
Fire control: Thomson-CSF Agrion; J-band.

Comment: Built by Simonneau Marine and delivered by SOFREMA in April 1992. Aluminium construction. Both based at Jiddah. The SSM launcher shown in the picture is not fitted.

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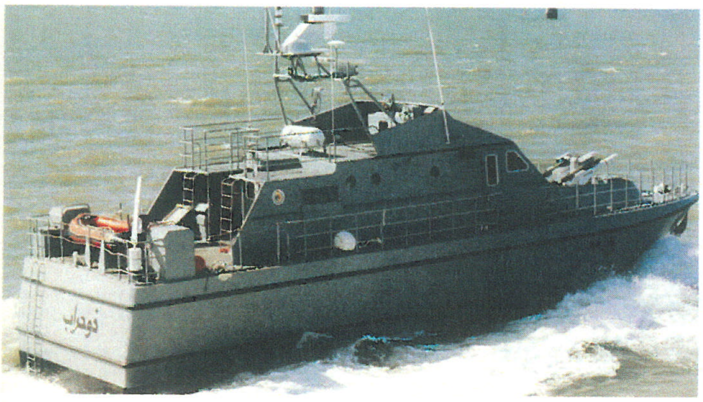

ZULURAB *1992, Simonneau Marine* / 0080565

4 + 2 STAN PATROL 2606 CRAFT (COASTAL PATROL CRAFT) (WPB)

ASSIR 317 **ALDHAHRAN** 318 **ALKAHRJ** 319 **ARAR** 320

Displacement, tons: 55 (approx) full load
Dimensions, feet (metres): 87.0 × 20.3 × 6.1 *(26.5 × 6.2 × 1.8)*
Main machinery: 2 MTU 12V 396 TE94 diesels; 4,429 hp *(3.3 MW)*; 2 shafts
Speed, knots: 28

Comment: Built by Damen Shipyards, Gorinchem. A class of six is expected.

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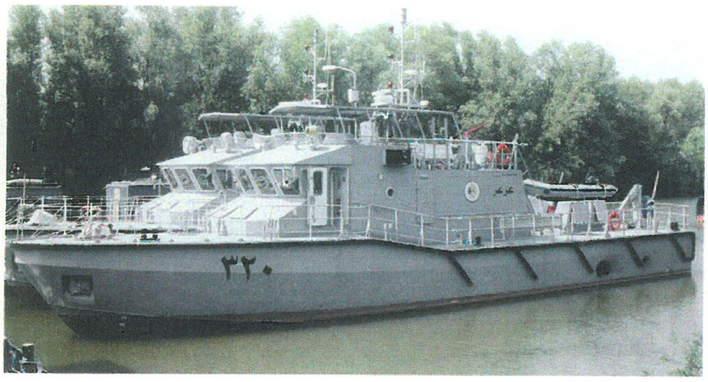

ARAR *7/2002, A A de Kruijf* / 0533301

2 AL JUBATEL CLASS (WPB)

AL JUBATEL **SALWA**

Displacement, tons: 95 full load
Dimensions, feet (metres): 86 × 19 × 6.9 *(26.2 × 5.8 × 2.1)*
Main machinery: 2 MTU 16V 396 TB94 diesels; 5,800 hp(m) *(4.26 MW)* sustained; 2 shafts
Speed, knots: 34. **Range, miles:** 1,100 at 25 kt
Complement: 12 (4 officers)
Guns: 1 Oerlikon/GAM-BO1 20 mm. 2—12.7 mm MGs.
Radars: Surface search: Racal Decca AC 1290; I-band.

Comment: Built by Abeking & Rasmussen, completed in April 1987. Smaller version of Turkish SAR 33 Type. One based at Jizan and one at Al Wajh.

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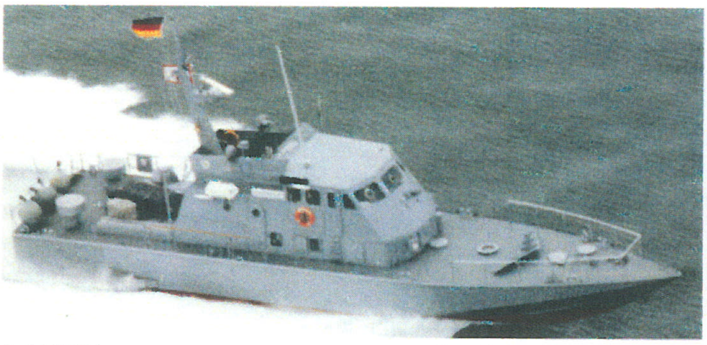

AL JUBATEL *1987, Abeking & Rasmussen* / 0080567

4 AL JOUF CLASS (WPBF)

AL JOUF 351 **TURAIF** 352 **HAIL** 353 **NAJRAN** 354

Displacement, tons: 210 full load
Dimensions, feet (metres): 126.6 × 26.2 × 6.2 *(38.6 × 8 × 1.9)*
Main machinery: 3 MTU 16 V 538 TB93 diesels; 11,265 hp(m) *(8.28 MW)* sustained; 3 shafts
Speed, knots: 38. **Range, miles:** 1,700 at 15 kt
Complement: 20 (4 officers)
Guns: 2 Oerlikon GAM-BO1 20 mm. 2—12.7 mm MGs.
Radars: Surface search: Racal S 1690 ARPA; I-band.
Navigation: Racal Decca RM 1290A; I-band.

Comment: Ordered on 18 October 1987 from Blohm + Voss. First two completed 15 June 1989; second pair 20 August 1989. Steel hulls with aluminium superstructure. *Hail* and *Najran* based at Jiddah in the Red Sea and the others at Aziziah.

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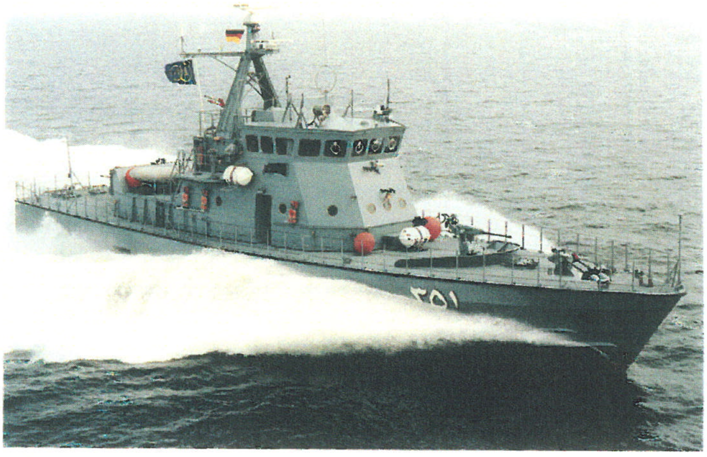

AL JOUF *6/1989, Blohm + Voss* / 0080566

3 SLINGSBY SAH 2200 HOVERCRAFT (UCAC)

Dimensions, feet (metres): 34.8 × 13.8 *(10.6 × 4.2)*
Main machinery: 1 Deutz BF6L913C diesel; 192 hp(m) *(141 kW)* sustained; lift and propulsion
Speed, knots: 40. **Range, miles:** 500 at 40 kt
Complement: 2
Military lift: 2.2 tons or 16 troops
Guns: 1—7.62 mm MG.

Comment: Supplied by Slingsby Amphibious Hovercraft, York in December 1990. Have Kevlar armour. These craft have replaced the SRN type.

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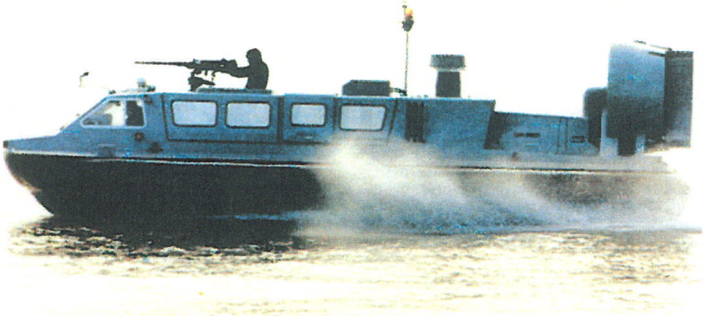

SAH 2200 *1990, Slingsby* / 0080568

5 GRIFFON 8000 TD(M) CLASS (HOVERCRAFT) (LCAC)

Displacement, tons: 18.2; 24.6 full load
Dimensions, feet (metres): 69.5 × 36.1 × 1 *(21.15 × 11 × 0.32)*
Main machinery: 2 MTU 12V 183 TB32 V12 diesels; 800 hp *(597 kW)*
Speed, knots: 50. **Range, miles:** 400 at 45 kt
Complement: 4 (2 officers) (accommodation for further 16)
Guns: 1—12.7 mm MG.
Radars: Raytheon R-80; I-band.

Comment: Five hovercraft ordered from Griffon in 2000 for delivery in 2001. Payload of about 8 tonnes. Similar to those supplied to Indian Coast Guard but with different superstructure. Three based on west coast and two on east coast.

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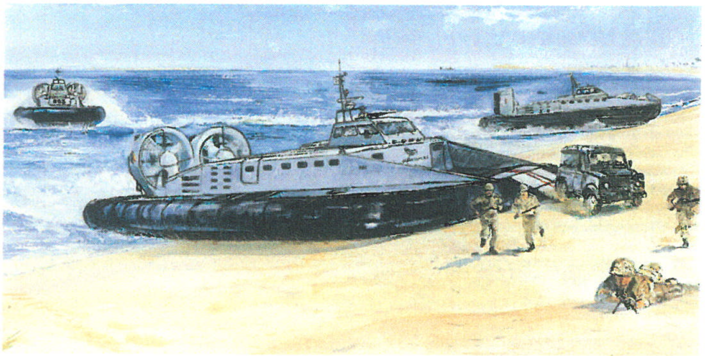


GRIFFON 8000 (artist's impression) *2000, Griffon Hovercraft Ltd* / 0126339

INSHORE PATROL CRAFT (PBI)

Type	*Date*	*Speed*
Rapier 15.2 m	1976	28
Enforcer, USA, 9.4 m	1980s	30
Simonneau SM 331, 9.3 m	1992	40
Boston Whalers, 8.3 m	1980s	30
Catamarans, 6.4 m	1977	30
Task Force Boats, 5.25 m	1976	20
Viper, 5.1 m	1980s	25
Cobra, 3.9 m	1984	40

Comment: About 500 mostly Task Force Boats. Many are based at Jiddah with the rest spread around the other bases. Most are armed with MGs and the larger craft have I-band radars.

VERIFIED

SIMONNEAU SM 331
6/1992, Simonneau Marine / 0080569

1 TRAINING SHIP (AXL)

TABBOUK

Displacement, tons: 585 full load
Dimensions, feet (metres): 196.8 × 32.8 × 5.8 *(60 × 10 × 1.8)*
Main machinery: 2 MTU MD 16V 538 TB80 diesels; 5,000 hp(m) *(3.68 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 3,500 at 12 kt
Complement: 26 (6 officers) plus 70 trainees
Guns: 1 Oerlikon GAM-BO1 20 mm.
Radars: Surface search: Racal Decca TM 1226; I-band.
Navigation: Racal Decca 2690BT; I-band.

Comment: Built by Bayerische, Germany and commissioned 1 December 1977. Based at Jiddah.

VERIFIED

3 SMALL TANKERS (YO)

AL FORAT **DAJLAH** **AL NIL**

Displacement, tons: 233 full load
Dimensions, feet (metres): 94.2 × 21.3 × 6.9 *(28.7 × 6.5 × 2.1)*
Main machinery: 2 Caterpillar D343 diesels; 2 shafts
Speed, knots: 12. **Range, miles:** 500 at 12 kt
Radars: Navigation: Decca 110; I-band.

Comment: *Al Nil* based at Aziziah, the others at Jiddah.

VERIFIED

Senegal
MARINE SÉNÉGALAISE

Country Overview

The Republic of Senegal was a French colony until 1960 when it gained independence. Situated in western Africa, it has an area of 75,750 square miles and is bordered to the north by Mauritania and to the south by Guinea and Guinea-Bissau. Its 286 n mile coastline with the Atlantic Ocean is divided in two by the coast of Gambia with which the country was united to form the confederation of Senegambia between 1981-89. The capital, largest city and principal port is Dakar. Territorial seas (12 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has been declared but its limits have only been partially defined by boundary agreements.

Headquarters Appointments

Head of Navy:
Captain Ousmane Ibrahima Sall

Personnel

(a) 2004: 900 officers and men
(b) 2 years' conscript service

Bases

Dakar, Elinkine (Casamance)

PATROL FORCES

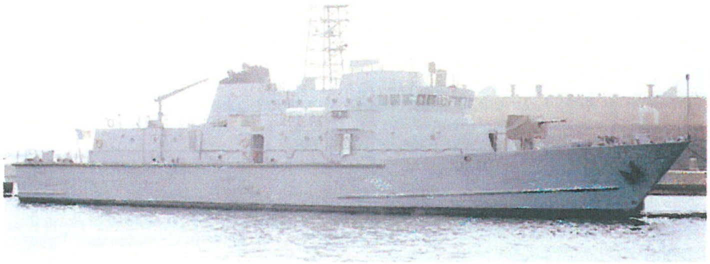
1 IMPROVED OSPREY 55 CLASS (LARGE PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Commissioned*
FOUTA	–	Danyard A/S, Fredrikshavn	1 June 1987

Displacement, tons: 470 full load
Dimensions, feet (metres): 180.5 × 33.8 × 8.5 *(55 × 10.3 × 2.6)*
Main machinery: 2 MAN Burmeister & Wain Alpha 12V23/30-DVO diesels; 4,400 hp(m) *(3.23 MW)* sustained; 2 shafts; cp props
Speed, knots: 20. **Range, miles:** 4,000 at 16 kt
Complement: 38 (4 officers) plus 8 spare
Guns: 1 Hispano Suiza 30 mm. 1 Giat 20 mm.
Radars: Surface search: Furuno FR 1411; I-band.
Navigation: Furuno FR 1221; I-band.

Comment: Ordered in 1985. Intended for patrolling the EEZ rather than as a warship, hence the modest armament. A 25 kt rigid inflatable boat can be launched from a stern ramp which has a protective hinged door. Similar vessels built for Morocco and Greece.

UPDATED



FOUTA
6/2003, Senegal Navy* / 0568323

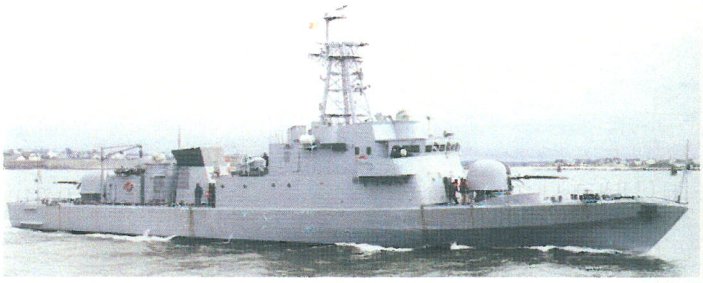
1 PR 72M CLASS (PBO)

Name	*No*	*Builders*	*Commissioned*
NJAMBUUR	P 773	SFCN, Villeneuve-la-Garenne	Feb 1983

Displacement, tons: 451 full load
Dimensions, feet (metres): 191.0 × 26.9 × 7.2 *(58.2 × 8.2 × 2.2)*
Main machinery: 2 UD 33V16M6D diesels; 5,470 hp *(4.08 MW)* sustained; 2 shafts
Speed, knots: 1[illegible]. **Range, miles:** 2,160 at 15 kt
Complement: 46
Guns: 2 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2—20 mm Oerlikon. 2—12.7 mm MGs.
Weapons control: 2 CSEE Naja optical directors.
Radars: Surface search: FR 7112 and FR 2105; I-band.

Comment: Ordered in 1979 and launched 23 December 1980. Completed September 1981 for shipping of armament at Lorient. Underwent overhaul at Lorient 2001-2002.

UPDATED



NJAMBUUR
7/2003, B Prézelin* / 0561511

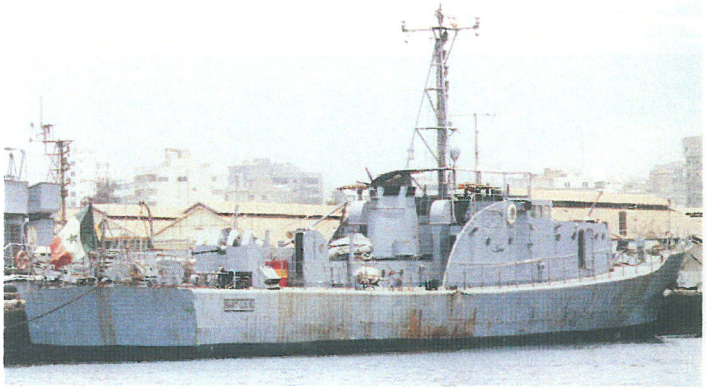
3 PR 48 CLASS (LARGE PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SAINT LOUIS	–	SFCN, Villeneuve-la-Garenne	5 Aug 1970	1 Mar 1971
POPENGUINE	–	SFCN, Villeneuve-la-Garenne	22 Mar 1974	10 Aug 1974
PODOR	–	SFCN, Villeneuve-la-Garenne	20 July 1976	13 July 1977

Displacement, tons: 250 full load
Dimensions, feet (metres): 156 × 23.3 × 8.1 *(47.5 × 7.1 × 2.5)*
Main machinery: 2 SACM AGO V12 CZSHR diesels; 4,340 hp(m) *(3.2 MW)*; 2 shafts
Speed, knots: 23. **Range, miles:** 2,000 at 16 kt
Complement: 33 (3 officers)
Guns: 2 Bofors 40 mm/70. 2—7.62 mm MGs.
Radars: Surface search: Racal Decca 1226; I-band.

Comment: First one ordered in 1969, second in 1973 and third in 1975. Operational status doubtful.

UPDATED



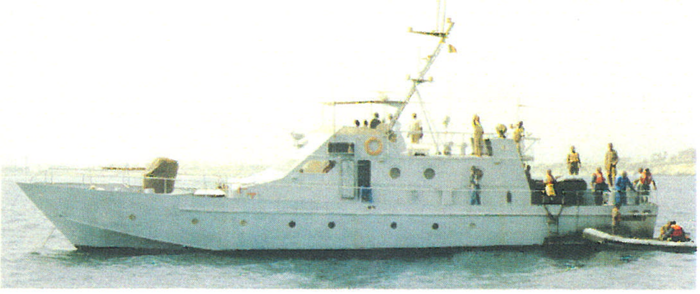
SAINT LOUIS
6/2000, A Sharma / 0105589

3 INTERCEPTOR CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
SÉNÉGAL II	—	Les Bateaux Turbec Ltd, Sainte Catherine, Canada	Feb 1979
SINE-SALOUM II	—	Les Bateaux Turbec Ltd, Sainte Catherine, Canada	16 Nov 1979
CASAMANCE II	—	Les Bateaux Turbec Ltd, Sainte Catherine, Canada	Aug 1979

Displacement, tons: 62 full load
Dimensions, feet (metres): 86.9 × 19.3 × 5.2 *(26.5 × 5.8 × 1.6)*
Main machinery: 2 diesels; 2,700 hp *(2.01 MW)*; 2 shafts
Speed, knots: 32.5
Guns: 1—20 mm Giat.
Radars: Surface search: Furuno; I-band.

Comment: Used for EEZ patrol. All still in service with new radars. ***UPDATED***



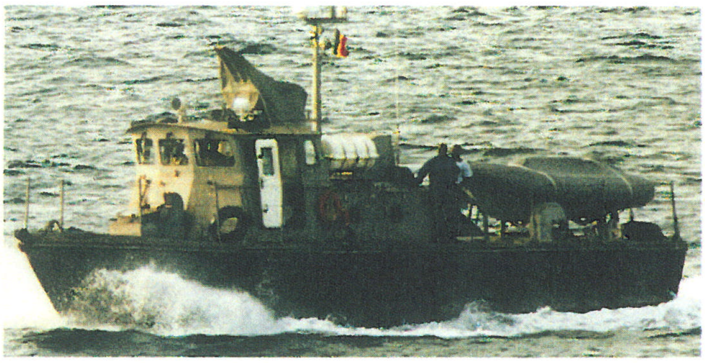
CASAMANCE II *6/2003*, Senegal Navy* / 0568322

2 PETERSON Mk 4 CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
MATELOT ALIOUNE SAMB	—	Peterson Builders Inc	28 Oct 1993
MATELOT OUMAR NDOYE	—	Peterson Builders Inc	4 Nov 1993

Displacement, tons: 22 full load
Dimensions, feet (metres): 51.3 × 14.8 × 4.3 *(15.6 × 4.5 × 1.3)*
Main machinery: 2 Detroit 6V-92TA diesels; 520 hp *(388 kW)*; 2 shafts
Speed, knots: 24. **Range, miles:** 500 at 20 kt
Complement: 6
Guns: 2—12.7 mm (twin) MGs. 2—7.62 mm (twin) MGs.
Radars: Surface search: Furuno; I-band.

Comment: Ordered in September 1992. Same type delivered to Cape Verde, Gambia and Guinea-Bissau (since deleted) under FMS. Carries an RIB on the stern. ***UPDATED***



MATELOT ALIOUNE SAMB *6/1999* / 0080570

LAND-BASED MARITIME AIRCRAFT

Numbers/Type: 1 de Havilland Canada DHC-6 Twin Otter.
Operational speed: 168 kt *(311 km/h)*.
Service ceiling: 23,200 ft *(7,070 m)*.
Range: 1,460 n miles *(2,705 km)*.
Role/Weapon systems: MR for coastal surveillance but effectiveness limited. Backed up by a French Navy Breguet Atlantique based at Dakar. Sensors: Search radar. Weapons: Unarmed. ***VERIFIED***

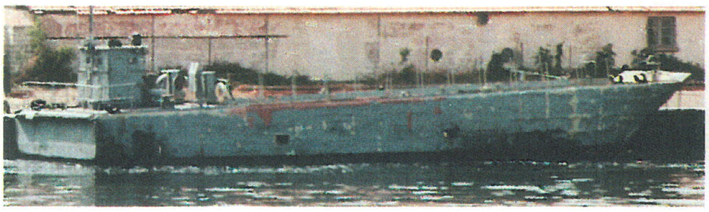
AMPHIBIOUS FORCES

1 CTM (LCM)

CTM (ex-*CTM 2*, ex-*CTM 5*)

Displacement, tons: 150 full load
Dimensions, feet (metres): 78 × 21 × 4.2 *(23.8 × 6.4 × 1.3)*
Main machinery: 2 Poyaud 520 V8 diesels; 225 hp(m) *(165 kW)*; 2 shafts
Speed, knots: 9.5. **Range, miles:** 350 at 8 kt
Complement: 6
Military lift: 90 tons

Comment: Transferred from French Navy in September 1999. Has a bow ramp. ***UPDATED***



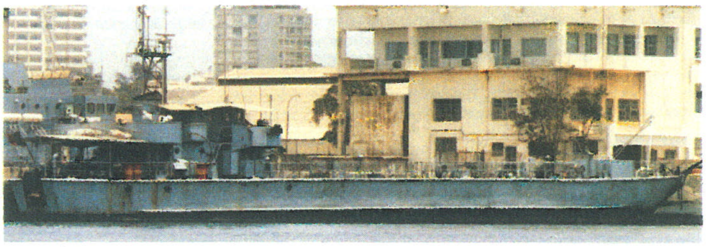
CTM *12/2001* / 0525011

1 CDIC CLASS (LCT)

FALEMÉ 2

Displacement, tons: 710 full load
Dimensions, feet (metres): 194.9 × 39 × 5.9 *(59.4 × 11.9 × 1.8)*
Main machinery: 2 SACM Uni Diesel UD 30 V12 M1 diesels; 1,200 hp(m) *(882 kW)* sustained; 2 shafts
Speed, knots: 10.5. **Range, miles:** 1,000 at 10 kt
Complement: 12
Military lift: 336 tons
Guns: Fitted for 2 Giat 20F2 20 mm.
Radars: Navigation: Racal Decca 1229; I-band.

Comment: Acquired vice one 'Edic' class on 7 February 1999. ***UPDATED***



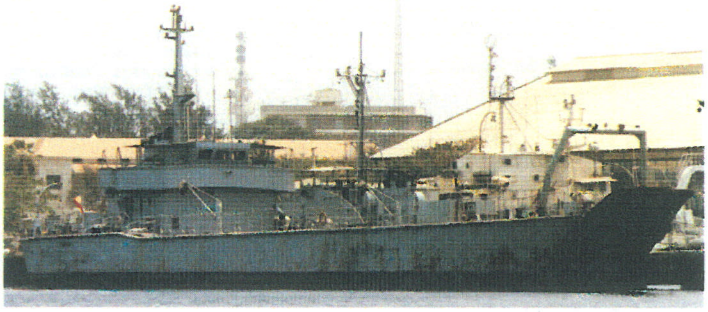
FALEMÉ 2 *6/2000, A Sharma* / 0093590

1 EDIC 700 CLASS (LCT)

Name	*No*	*Builders*	*Launched*	*Commissioned*
KARABANE	841	SFCN, Villeneuve-la-Garenne	6 Mar 1986	30 Jan 1987

Displacement, tons: 736 full load
Dimensions, feet (metres): 193.5 × 39 × 5.6 *(59 × 11.9 × 1.7)*
Main machinery: 2 SACM MGO 175 V12 ASH diesels; 1,200 hp(m) *(882 kW)* sustained; 2 shafts
Speed, knots: 12; 8 *(Javeline)*. **Range, miles:** 1,800 at 10 kt
Complement: 18 (33 spare billets)
Military lift: 12 trucks; 340 tons equipment
Guns: Fitted for 2 Giat 20 mm.
Radars: Navigation: Racal Decca 1226; I-band.

Comment: Ordered May 1985, delivered 23 June 1986 from France. Second of class from France in 1995 and returned again in 1996. ***UPDATED***



KARABANE *6/2000, A Sharma* / 0093591

AUXILIARIES

Notes: (1) Two modified purse-seiners, *Itaf Deme* and *Louis Sauger* are used for fisheries research. Both are crewed by the Navy.
(2) There is also a harbour tug *Cheik Oumar Fall* (ex-Y 719) on loan from the French Navy since 1990.

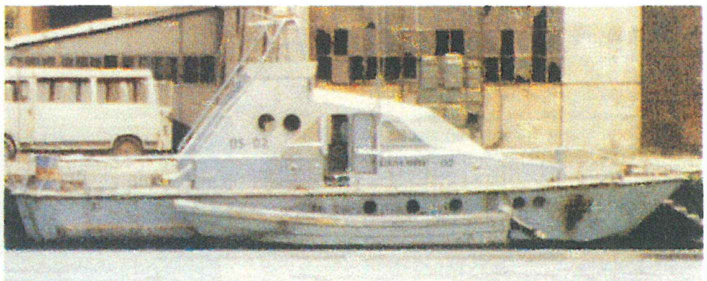
CUSTOMS

2 TYPE DS-01 (COASTAL PATROL CRAFT) (PB)

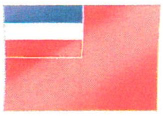
DIALORE 1 DS-01 **DIALORE 2** DS-02

Displacement, tons: 26 full load
Dimensions, feet (metres): 52.5 × 15.1 × 7.5 *(16 × 4.6 × 2.3)*
Main machinery: 2 GM diesels; 970 hp *(724 kW)*; 2 shafts
Speed, knots: 20
Complement: 8
Guns: 1—12.7 mm MG.
Radars: Surface search: Raytheon; I-band.

Comment: Ordered A T Celaya, Bilbao March 1981. Delivered 9 February 1982. There are also some small harbour craft. ***UPDATED***



DIALORE 2 *6/2000, A Sharma* / 0105591



Serbia and Montenegro
KORPUS RATNE MORNARIĆE

Country Overview

The Federal Republic of Serbia and Montenegro, known until February 2003 as the Federal Republic of Yugoslavia, was formed in 1992 following the secession of four of the six republics from the former Socialist Federal Republic of Yugoslavia (SFRY). With an area of 39,449 square miles, it is located in south-eastern Europe in the Balkan Peninsula and comprises Serbia (including the provinces of Kosovo and Vojvodina) and Montenegro. It is bordered to the north by Hungary, to the east by Romania and Bulgaria, to the south by Macedonia and Albania and to the west by Croatia and Bosnia and Herzegovina. It has a 107 n mile coastline with the Adriatic Sea on which Bar and Tivat are the principal ports. The capital and largest city is Belgrade. Territorial waters (12 n miles) are claimed but an EEZ has not been claimed.

Headquarters Appointments

Commander-in-Chief:
Rear Admiral Jovan Grbavac
Chief of Staff:
Captain Dragan Samardzić

Personnel

2004: 5,723 (2,543 conscripts)

Bases

Headquarters: Bar
Main base: Tivat
Minor base: Bar

Organisation

The Navy Corps forms part of the Armed Forces of Serbia and Montenegro and is subordinate to the Deputy Chief of General Staff for the Navy.

Flotilla: 88 Submarine Brigade, 18 Missile Boat Brigade, 38 Patrol Brigade and 376 Naval Logistics Command. The Riverine Flotilla (Novi Sad) is subordinate to the Maritime Department of the General Staff.

Coastal Defence Command: 81 Bde Coast Defence (Kumbor), 83 Bde Coast Defence (Bar), 110 Coastal Artillery Brigade and 108 Coastal Missile Brigade. The latter is equipped with 9-12 truck-mounted twin SS-C-3 Styx SSM launchers and a number of Coastal Artillery units with 130 mm, 122 mm and 88 mm guns.

DELETIONS

Submarines

2001	*Tisa, Una*
2003	*Drava*

Patrol Forces

2002	*Josip Mažar, Šoša, Nikola Martinović, Petar Drapšin Mirče, Acev, Fruška Gora*
2003	PC 303, 11 Type 15

Mine Warfare Forces

2002	*Brseč, Mljet*

Amphibious Forces

2002	3 DSM 501
2003	11 Type 11

Auxiliaries

2002	*Vis*
2003	*Liganj*

SUBMARINES

1 SAVA CLASS (PATROL SUBMARINE) (SSC)

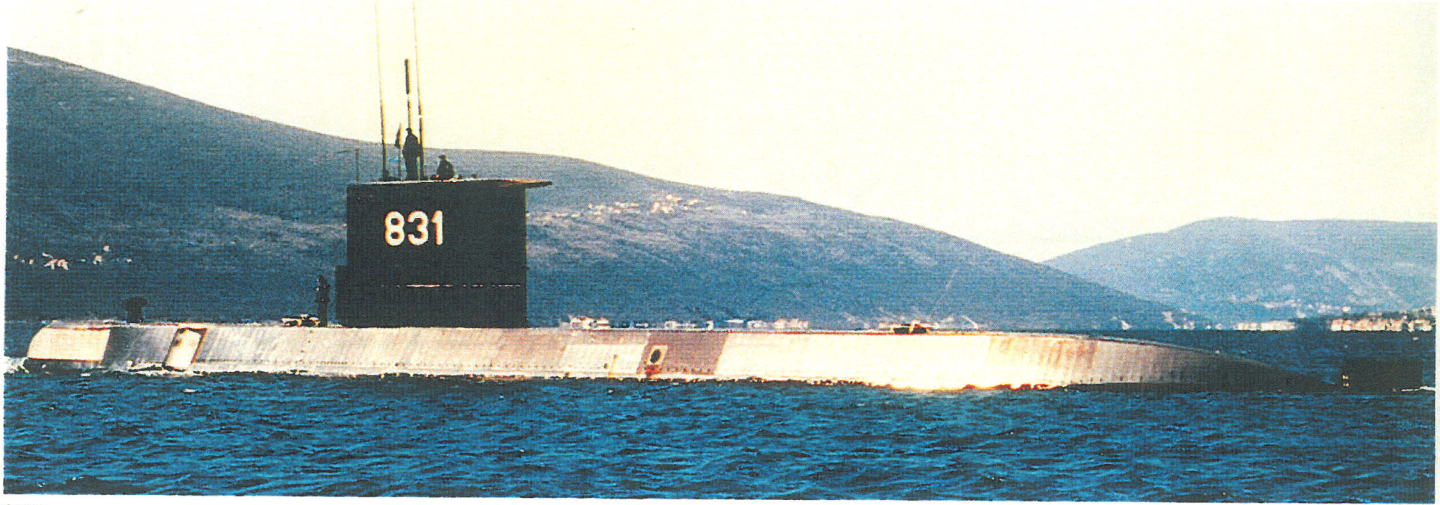
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SAVA	831	S and DE Factory, Split	1975	1977	1978

Displacement, tons: 830 surfaced; 960 dived
Dimensions, feet (metres): 182.7 × 23.6 × 16.7 *(55.7 × 7.2 × 5.1)*
Main machinery: Diesel-electric; 2 Sulzer diesels; 1,600 hp(m) *(1.18 MW)*; 2 generators; 1 MW; 1 motor; 2,040 hp(m) *(1.5 MW)*; 1 shaft
Speed, knots: 10 surfaced; 16 dived
Complement: 35

Torpedoes: 6—21 in *(533 mm)* bow tubes. 10 TEST-71ME; wire-guided active/passive homing to 15 km *(8.1 n miles)* at 40 kt or 20 km *(10.8 n miles)* at 25 kt; warhead 220 kg.
Mines: 20 in lieu of torpedoes.
Countermeasures: ESM: Stop Light; radar warning.
Radars: Surface search: Snoop Group; I-band.
Sonars: Atlas Elektronik PRS-3; hull-mounted; active/passive search and attack; medium frequency.

Structure: An improved version of the 'Heroj' class. Diving depth, 300 m *(980 ft)*, built with USSR electronic equipment and armament. Pressure hull is 42.7 × 5.05 m and the casing is made of GRP. Accommodation is poor, suggesting the design was intended for only short periods at sea.
Operational: Second of class *Drava* was decommissioned in 2003. Based at Tivat.

UPDATED



SAVA

2/1998, Yugoslav Navy / 0050744

1 HEROJ CLASS (PATROL SUBMARINE) (SSC)

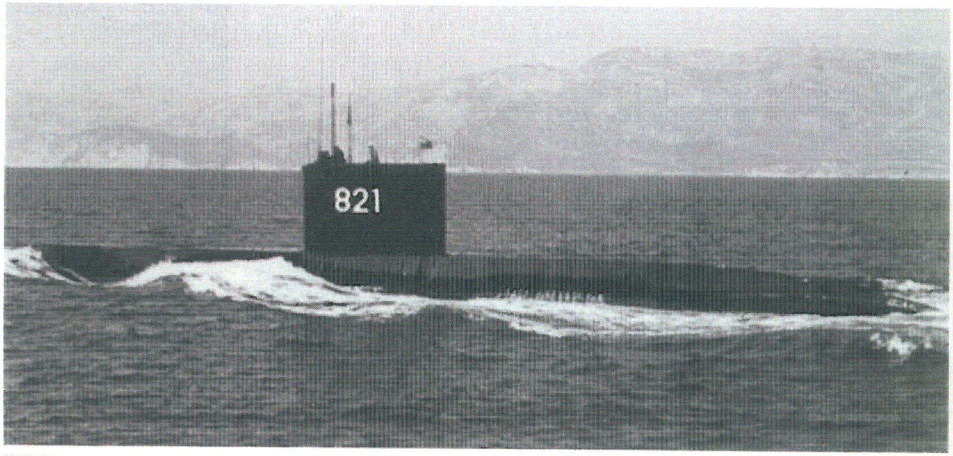
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HEROJ	821	Uljanic Shipyard, Pula	1964	1967	1968

Displacement, tons: 615 surfaced; 705 dived
Dimensions, feet (metres): 165.4 × 15.4 × 14.8 *(50.4 × 4.7 × 4.5)*
Main machinery: Diesel-electric; 2 Rade Končar diesel generators; 1,200 hp(m) *(880 kW)*; 1 motor; 1,560 hp(m) *(1.15 MW)*; 1 shaft; auxiliary motor
Speed, knots: 10 surfaced; 15 dived
Range, miles: 4,100 at 10 kt snorting
Complement: 31

Torpedoes: 4—21 in *(533 mm)* bow tubes. 6 SET-65E; active/passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 205 kg.
Mines: 12 in lieu of torpedoes.
Countermeasures: ESM: Stop Light; radar warning.
Radars: Surface search: Snoop Group; I-band.
Sonars: Thomson Sintra Eledone; hull-mounted; passive ranging; medium frequency.

Structure: Diving depth 150 m *(500 ft)*.
Operational: *Heroj* was assessed as having been placed in reserve in 2000 but was reported officially as being operational again in 2003. However, its effectiveness is likely to be mitigated by its age.

NEW ENTRY



HEROJ

*1982**

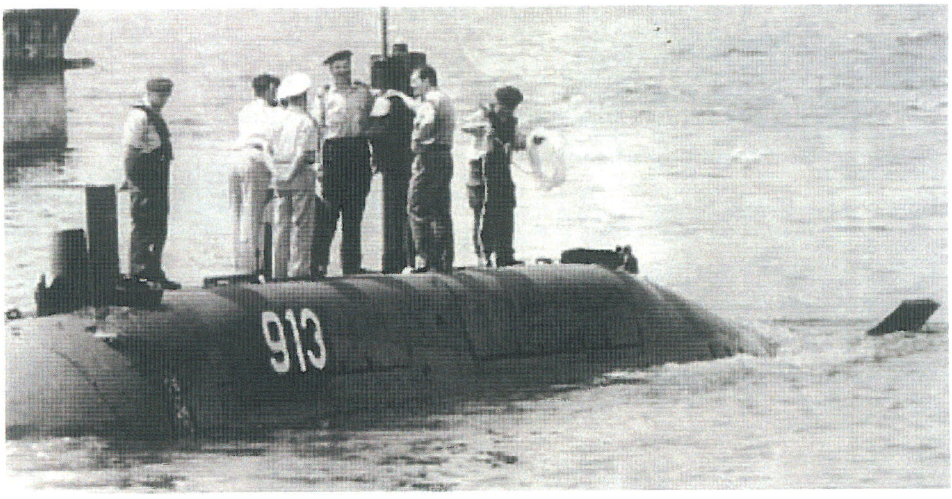
3 UNA CLASS (MIDGET SUBMARINES) (SSW)

ZETA 913
KUPA 915
VARDAR 916

Displacement, tons: 76 surfaced; 88 dived
Dimensions, feet (metres): 61.7 × 9 × 8.2 *(18.8 × 2.7 × 2.5)*
Main machinery: 2 motors; 49 hp(m) *(36 kW)*; 1 shaft
Speed, knots: 6 surfaced; 7 dived
Range, miles: 200 at 4 kt
Complement: 6 plus 4 swimmers
Sonars: Atlas Elektronik; passive/active search; high frequency.

Comment: Building yard, Split. First of class commissioned May 1985; last two in 1989. Exit/re-entry capability with mining capacity. Can carry six combat swimmers, plus four Swimmer Delivery Vehicles (SDV) and limpet mines. Diving depth: 120 m *(394 ft)*. Batteries can only be charged from shore or from a depot ship. All based at Tivat and all reported operational.

UPDATED



ZETA
8/2000, Vojska / 0105771

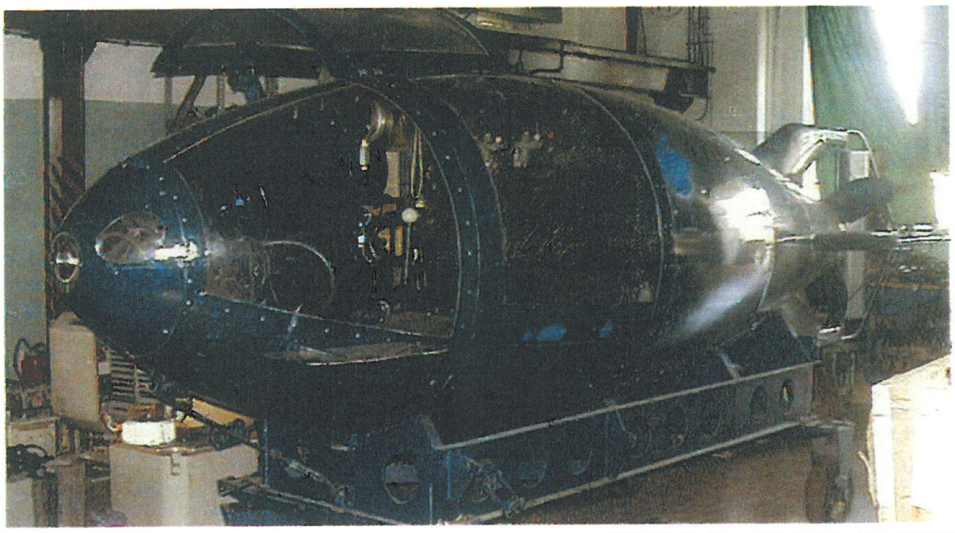
2 R-2 MALA CLASS (TWO-MAN SWIMMER DELIVERY VEHICLES) (LDW)

Displacement, tons: 1.4
Dimensions, feet (metres): 16.1 × 4.6 × 4.3 *(4.9 × 1.4 × 1.3)*
Main machinery: 1 motor; 4.7 hp(m) *(3.5 kW)*; 1 shaft
Speed, knots: 4.4
Range, miles: 18 at 4.4 kt; 23 at 3.7 kt
Complement: 2
Mines: 250 kg of limpet mines.

Comment: Free-flood craft with the main motor, battery, navigation pod and electronic equipment housed in separate watertight cylinders. Instrumentation includes aircraft type gyrocompass, magnetic compass, depth gauge (with 0-100 m scale), echo-sounder, sonar and two searchlights. Constructed of light aluminium and plexiglass, it is fitted with fore and after-hydroplanes, the tail being a conventional cruciform with a single rudder abaft the screw. Large perspex windows give a good all-round view. Operating depth 60 m *(196.9 ft)* maximum. Two operated by Croatia. Two reported sold to Syria and one to Sweden.

Notes: There are also reported to be four R-1 craft. Transportable in submarine torpedo tubes and crewed by one man, they are 3.7 m craft, powered by a 1 kW electric motor and 24V silver-zinc batteries. Capable of 2.8 kt, they can dive to 60 m. They have a range of 4 n miles. Of a total twelve reported to have been manufactured. A further six units have probably been deleted, one unit is in Croatia and one was exported to Sweden.

NEW ENTRY



R-2
6/2003, Serbia and Montenegro Navy* / 0572433

FRIGATES

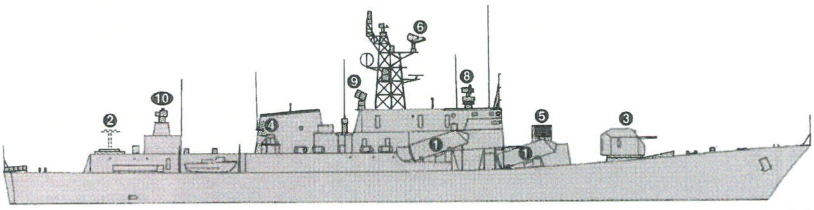
2 KOTOR CLASS (FFGM)

Name	*No*	*Builders*	*Launched*	*Commissioned*
KOTOR	33	Tito Shipyard, Kraljevica	21 May 1985	Jan 1987
NOVI SAD (ex-*Pula*)	34	Tito Shipyard, Kraljevica	18 Dec 1986	Nov 1988

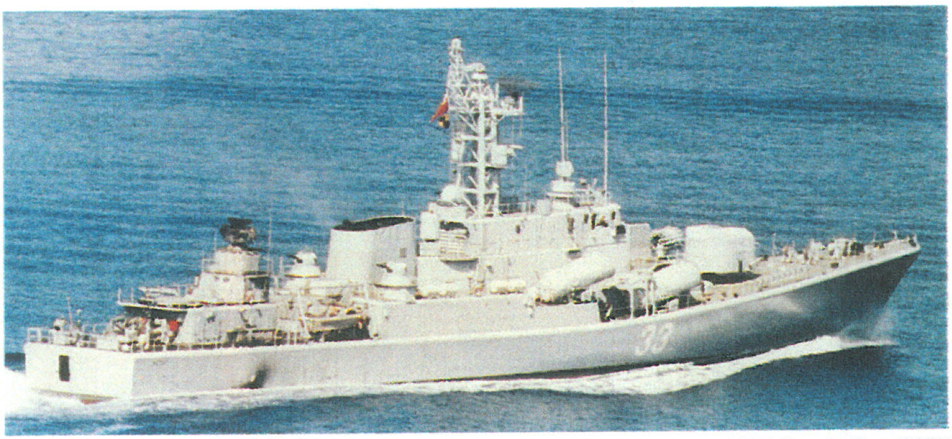
Displacement, tons: 1,870 full load
Dimensions, feet (metres): 317.3 × 42 × 13.7 *(96.7 × 12.8 × 4.2)*
Main machinery: CODAG; 1 SGW Nikolayev gas turbine; 18,000 hp(m) *(13.2 MW)*; 2 SEMT-Pielstick 12 PA6 V 280 diesels; 9,600 hp(m) *(7.1 MW)* sustained; 3 shafts
Speed, knots: 27 gas; 22 diesel. **Range, miles:** 1,800 at 14 kt
Complement: 110

Missiles: SSM: 4 SS-N-2C Styx ①; active radar or IR homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg; sea-skimmer at end of run.
SAM: SA-N-4 Gecko twin launcher ②; semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; height envelope 9-3,048 m *(29.5-10,000 ft)*; warhead 50 kg.
Guns: 4 USSR 3 in *(76 mm)*/60 (2 twin) (1 mounting only in 33 and 34) ③; 90 rds/min to 15 km *(8 n miles)*; weight of shell 6.8 kg.
4 USSR 30 mm/65 (2 twin) ④; 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
A/S mortars: 2 RBU 6000 12-barrelled trainable ⑤; range 6,000 m; warhead 31 kg.
Mines: Can lay mines.
Countermeasures: Decoys: 2 Wallop Barricade double layer chaff launchers.
Radars: Air/surface search: Strut Curve ⑥; F-band.
Navigation: Palm Frond; I-band.
Fire control: PEAB 9LV200 ⑧; I-band (for 76 mm and SSM).
Drum Tilt ⑨; H/I-band (for 30 mm).
Pop Group ⑩; F/H/I-band (for SAM).
IFF: High Pole; 2 Square Head.
Sonars: Bull Nose; hull-mounted; active search and attack; medium frequency.

Programmes: Built under licence. Type name, VPB (Veliki Patrolni Brod).
Modernisation: Combat data system fitted in *Novi Sad* in 2000 and may be retrofitted in the other. The intention is to upgrade the missile system, possibly with Russian SS-N-25 or Chinese C-802 SSMs.



KOTOR
(Scale 1 : 900), Ian Sturton



KOTOR
6/1998, Yugoslav Navy / 0050746

Structure: The hulls are similar to the Russian 'Koni' class but are to a Yugoslavian design.

Operational: Based at Tivat. *Podgorica* decommissioned in 1998, cannibalised for spares.

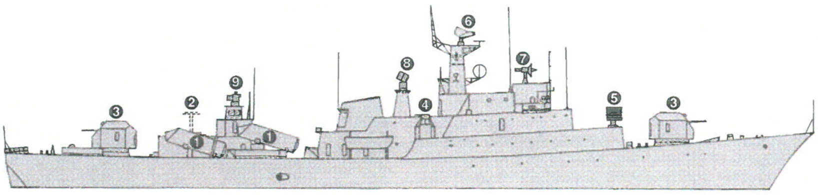
UPDATED

1 BEOGRAD (KONI) (PROJECT 1159) CLASS (FFGM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
BEOGRAD (ex-*Split*)	31	Zelenodolsk Shipyard	1978	21 Apr 1979	10 Mar 1980

Displacement, tons: 1,590 full load
Dimensions, feet (metres): 316.7 × 41.0 × 13.5 *(96.5 × 12.5 × 4.1)*
Main machinery: CODAG; 1 SGW M-813 Nikolayev gas turbine; 18,000 hp(m) *(13.2 MW)*; 2 Type 61B diesels; 9,500 hp(m) *(7.1 MW)* sustained; 3 shafts
Speed, knots: 27 gas; 22 diesel. **Range, miles:** 1,800 at 14 kt
Complement: 96

Missiles: SSM: 4 SS-N-2C Styx ❶; active radar or IR homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg; sea-skimmer at end of run.
SAM: SA-N-4 Gecko twin launcher ❷; semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; warhead 50 kg.
Guns: 4 USSR 3 in *(76 mm)*/60 (2 twin) ❸; 90 rds/min to 15 km *(8 n miles)*; weight of shell 6.8 kg.
4 USSR 30 mm/65 (2 twin) ❹; 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
A/S mortars: 2 RBU 6000 12-barrelled trainable ❺; range 6,000 m; warhead 31 kg.
Mines: Can lay mines.



BEOGRAD *(Scale 1 : 900), Ian Sturton* / 0572526

Countermeasures: Decoys: 2 PK 16.
ESM: Watch Dog; intercept.
Radars: Air/surface search: Strut Curve ❻; F-band.
Navigation: Don 2; I-band.
Fire control: Owl Screech ❼; G-band (for 76 mm and SSM).
Drum Tilt ❽; H/I-band (for 30 mm).
Pop Group ❾; F/H/I-band (for SAM).
IFF: High Pole; 2 Square Head.

Sonars: Hercules; hull-mounted; active search and attack; medium frequency.

Programmes: Transferred from the USSR in 1980.
Operational: Based at Tivat. Although assessed to have been decommissioned, officially reported as operational in 2003.

NEW ENTRY

LAND-BASED MARITIME AIRCRAFT

Notes: There are no operational land-based aircraft.

PATROL FORCES

5 KONČAR CLASS (TYPE 240) (PTFG)

Name	*No*	*Builders*	*Launched*	*Commissioned*
RADE KONČAR	401	Tito Shipyard, Kraljevica	16 Oct 1976	Apr 1977
RAMIZ SADIKU	403	Tito Shipyard, Kraljevica	24 Apr 1978	Sep 1978
HASAN ZAFIROVIĆ-LACA	404	Tito Shipyard, Kraljevica	9 Nov 1978	Dec 1978
JORDAN NIKOLOV ORČE	405	Tito Shipyard, Kraljevica	26 Apr 1979	Aug 1979
ANTE BANINA	406	Tito Shipyard, Kraljevica	23 Nov 1979	Nov 1980

Displacement, tons: 271 full load
Dimensions, feet (metres): 147.6 × 27.6 × 8.5 *(45 × 8.4 × 2.6)*
Main machinery: CODAG; 2 RR Proteus gas turbines; 7,100 hp *(5.29 MW)* sustained; 2 MTU 16V 538 TB91 diesels; 6,000 hp(m) *(4.41 MW)* sustained; 4 shafts; cp props
Speed, knots: 38. **Range, miles:** 490 at 38 kt; 870 at 23 kt (diesels)
Complement: 30 (5 officers)

Missiles: SSM: 2 SS-N-2B Styx; active radar or IR homing to 46 km *(25 n miles)* at 0.9 Mach; warhead 513 kg.
Guns: 2 Bofors 57 mm/70; 200 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg.
2—128 mm rocket launchers for illuminants.
2—30 mm/65 (twin) or 1—30 mm/65 AK 630 may be fitted in place of the after 57 mm.
Countermeasures: 2 Wallop Barricade double layer chaff launchers.
Weapons control: PEAB 9LV 202 GFCS.
Radars: Surface search: Decca 1226; I-band.
Fire control: Philips TAB; I/J-band.

Programmes: Type name, Raketna Topovnjaca.
Structure: Aluminium superstructure. Designed by the Naval Shipping Institute in Zagreb based on Swedish 'Spica' class with bridge amidships like Malaysian boats. The after 57 mm gun is replaced by a twin 30 mm mounting in at least one of the class.
Operational: 402 was taken by Croatia in 1991 and 401 was badly damaged but has been repaired. 401, 405 and 406 are reported active. Operational status of 403 is doubtful. Three further craft cannibalised for spares. Based at Tivat.

UPDATED

RADE KONČAR *6/2003*, Serbia and Montenegro Navy* / 0572434

HASAN ZAFIROVIĆ-LACA *6/2001, Vojska* / 0528419

4 MIRNA CLASS (TYPE 140) (PCM)

UČKA 174 **GRMEČ** 175 **KOSMAJ** 178 **ZELENGORA** 179

Displacement, tons: 142 full load
Dimensions, feet (metres): 104.9 × 22 × 7.5 *(32 × 6.7 × 2.3)*
Main machinery: 2 SEMT-Pielstick 12 PA4 200 VGDS diesels; 5,292 hp(m) *(3.89 MW)* sustained; 2 shafts
Speed, knots: 28. **Range, miles:** 400 at 20 kt
Complement: 19 (3 officers)
Missiles: SAM: 1 SA-N-5 Grail quad mounting; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg.
Guns: 1 Bofors 40 mm/70. 4—20 mm (quad). 2—128 mm illuminant launchers.
Depth charges: 8 DCs.
Radars: Surface search: Racal Decca 1216C; I-band.
Sonars: Simrad SQS-3D/3F; active; high frequency.

Comment: Builders, Kraljevica Yard. Launched between June 1981 and December 1983. An unusual feature of this design is the fitting of an electric outboard motor giving a speed of up to 6 kt. One sunk possibly by a limpet mine in November 1991. Four held by Croatia. Others have paid off and been cannibalised. Gun armament aft changed in 1999/2000.

UPDATED

MIRNA class (old guns) *1988, Yugoslav Navy* / 0084260

6 TYPE 20 BISCAYA CLASS (RIVER PATROL CRAFT) (PBR)

PC 211-216

Displacement, tons: 55 standard
Dimensions, feet (metres): 71.5 × 17 × 3.9 *(21.8 × 5.3 × 1.2)*
Main machinery: 2 diesels; 1,156 hp(m) *(850 kW)*; 2 shafts
Speed, knots: 16. **Range, miles:** 200 at 15 kt
Complement: 10
Guns: 2 Oerlikon 20 mm.
Radars: Surface search: Decca 110; I-band.

Comment: Completed in the late 1980s. Steel hull with GRP superstructure. All active with the Riverine Flotilla.

VERIFIED

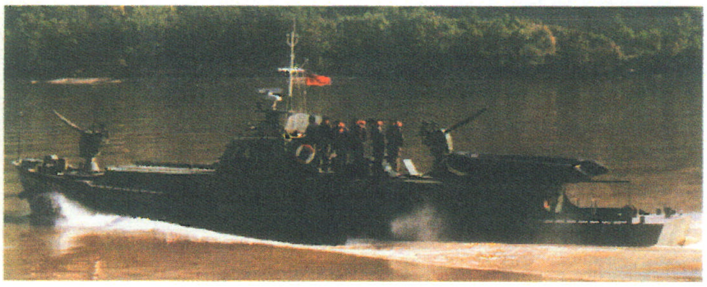
PC 215 *1988, Yugoslav Navy* / 0084261

1 RIVER PATROL BOAT (PBR)

PC 111

Displacement, tons: 29 full load
Dimensions, feet (metres): 79.1 × 13.5 × 2.9 *(24.1 × 4.1 × 0.9)*
Main machinery: 2 diesels; 652 hp(m) *(486 kW)*; 2 shafts
Speed, knots: 17. **Range, miles:** 720 at 17 kt
Complement: 6

Comment: Built for US Navy's Rhine River patrol and transferred in the 1950s. ***VERIFIED***



PC 111 *6/2001, Vojska* / 0528418

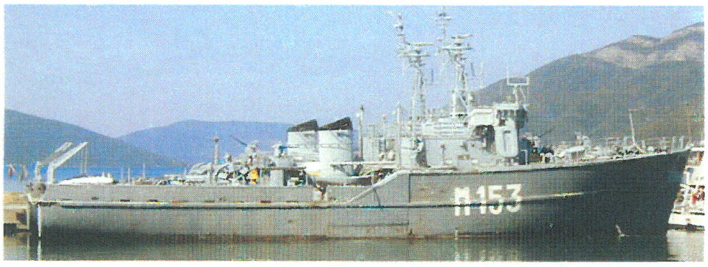
MINE WARFARE FORCES

2 SIRIUS CLASS (MINESWEEPERS/HUNTERS) (MSC/MHC)

Name	*No*	*Builders*	*Commissioned*
PODGORA (ex-*Smeli*)	M 152 (ex-D 26)	A Normand, France	Sep 1957
BLITVENICA (ex-*Slobodni*)	M 153 (ex-D 27)	A Normand, France	Sep 1957

Displacement, tons: 365 standard; 424 full load
Dimensions, feet (metres): 152 × 28 × 8.2 *(46.4 × 8.6 × 2.5)*
Main machinery: 2 SEMT-Pielstick PA1 175 diesels; 1,620 hp(m) *(1.19 MW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 3,000 at 10 kt
Complement: 40
Guns: 2 Oerlikon 20 mm.
Countermeasures: MCMV: PAP 104 (minehunter); remote-controlled submersibles.
Radars: Navigation: Thomson-CSF DRBN 30; I-band.
Sonars: Thomson Sintra TSM 2022 (minehunter); hull-mounted; active minehunting; high frequency.

Comment: Built to a British design as US 'offshore' orders. *Blitvenica* converted to minehunter in 1980-81. Decca Hi-fix. These two are based at Tivat and are both operational. ***UPDATED***



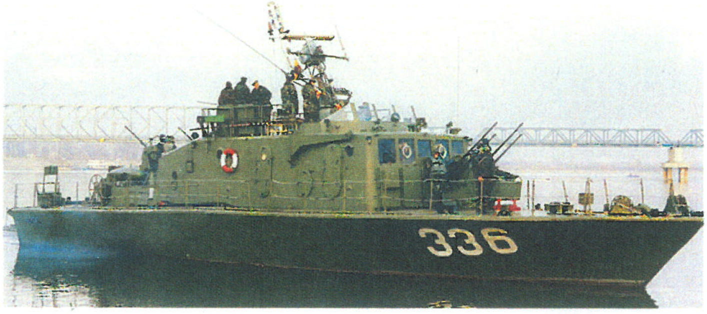
BLITVENICA *6/2003*, Serbia and Montenegro Navy* / 0572435

7 NESTIN CLASS (RIVER MINESWEEPERS) (MSR)

Name	*No*	*Builders*	*Commissioned*
NESTIN	M 331	Brodotehnika, Belgrade	20 Dec 1975
MOTAJICA	M 332	Brodotehnika, Belgrade	18 Dec 1976
BELEGIŠ	M 333	Brodotehnika, Belgrade	1976
BOSUT	M 334	Brodotehnika, Belgrade	1979
VUČEDOL	M 335	Brodotehnika, Belgrade	1979
DJERDAP	M 336	Brodotehnika, Belgrade	1980
NOVI SAD	M 341	Brodotehnika, Belgrade	8 June 1996

Displacement, tons: 65 full load
Dimensions, feet (metres): 88.6 × 21.7 × 5.2 *(27 × 6.3 × 1.6)*
Main machinery: 2 diesels; 520 hp(m) *(382 kW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 860 at 11 kt
Complement: 17
Guns: 6 Hispano 20 mm (quad fwd, 2 single aft). Some may still have a 40 mm gun forward.
8—20 mm (quad fwd and aft) (M 341).
Mines: 24 can be carried.
Countermeasures: MCMV: Magnetic, acoustic and explosive sweeping gear.
Radars: Surface search: Racal Decca 1226; I-band.

Comment: Some transferred to Hungary and Iraq. One more completed in 1996. The class is based at Novi Sad as part of the Riverine Flotilla. One deleted in 1997. One more building is unlikely to be completed. M 341, which replaced the previously deleted M 337, is to a modified design which includes different armament. ***UPDATED***



DJERDAP *6/2003*, Serbia and Montenegro Navy* / 0572436

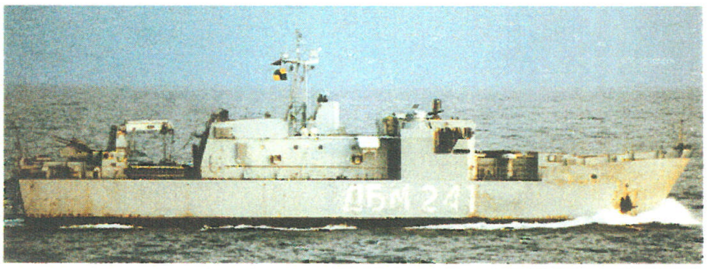
AMPHIBIOUS FORCES

1 SILBA CLASS (LCT/ML)

Name	*No*	*Builders*	*Commissioned*
KRK (ex-*Silba*)	DBM 241	Brodosplit Shipyard, Split	1990

Displacement, tons: 880 full load
Dimensions, feet (metres): 163.1 oa; 144 wl × 33.5 × 8.5 *(49.7; 43.9 × 10.2 × 2.6)*
Main machinery: 2 Burmeister & Wain Alpha 10V23L-VO diesels; 3,100 hp(m) *(2.28 MW)* sustained; 2 shafts; cp props
Speed, knots: 12. **Range, miles:** 1,200 at 12 kt
Complement: 33 (3 officers)
Military lift: 460 tons or 6 medium tanks or 7 APCs or 4—130 mm guns plus towing vehicles or 300 troops with equipment
Missiles: SAM: 1 SA-N-5 Grail quad mounting.
Guns: 4—30 mm/65 (2 twin) AK 230.
4—20 mm M75 (quad). 2—128 mm illuminant launchers.
Mines: 94 Type SAG-1.
Radars: Surface search: Racal Decca; I-band.

Comment: Ro-ro design with bow and stern ramps. Can be used for minelaying, transporting weapons or equipment and troops. Operational and based at Tivat. Two further craft, launched in 1992 and 1994, are in the Croatian Navy. ***UPDATED***



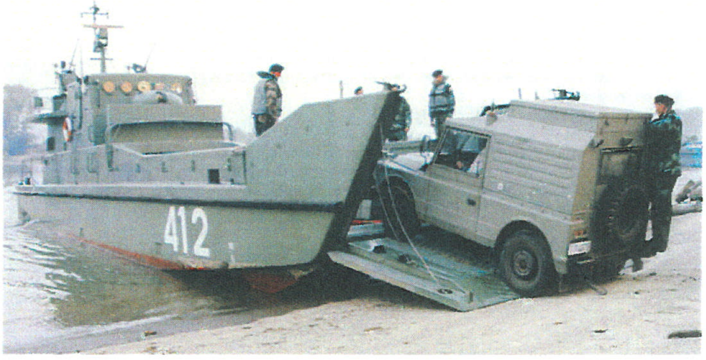
KRK *6/1998, MoD Bonn* / 0050751

7 TYPE 22 (LCU)

DJC 627
DJC 628
DJC 411 (ex-DJC 632)
DJC 412 (ex-DJC 625)
DJC 413 (ex-DJC 630)
DJC 414 (ex-DJC 621)
DJC 415 (ex-DJC 631)

Displacement, tons: 48 full load
Dimensions, feet (metres): 73.2 × 15.7 × 3.3 *(22.3 × 4.8 × 1)*
Main engines: 2 MTU diesels; 1,740 hp(m) *(1.28 MW)*; 2 water-jets
Speed, knots: 35. **Range, miles:** 320 at 22 kt
Complement: 8
Military lift: 40 troops or 15 tons cargo
Guns: 2—20 mm M71.
Radars: Navigation: Decca 101; I-band.

Comment: Built of polyester and glass fibre. Last one completed in 1987. Based in Danube Flotilla. ***UPDATED***



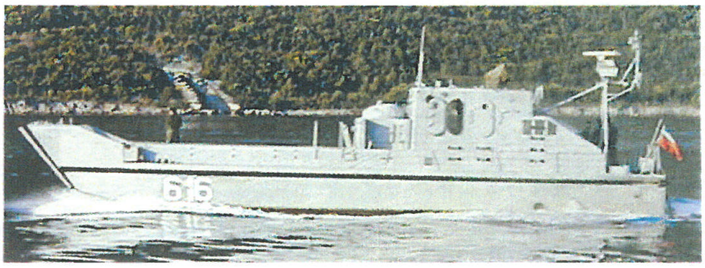
DJC 412 *6/2003*, Serbia and Montenegro Navy* / 0572441

4 TYPE 21 (LCU)

DJC 614, 616, 617-618

Displacement, tons: 32 full load
Dimensions, feet (metres): 69.9 × 15.7 × 5.2 *(21.3 × 4.8 × 1.6)*
Main machinery: 1 diesel; 1,450 hp(m) *(1.07 MW)*; 1 shaft
Speed, knots: 23. **Range, miles:** 320 at 22 kt
Complement: 6
Military lift: 6 tons
Guns: 1—20 mm M71.

Comment: The survivors of a class of 20 built between 1976 and 1979. Four held by Croatia in 1991 of which three have paid off. Others sunk or scrapped. Some of these may be laid up. ***UPDATED***



DJC 616 *6/2003*, Serbia and Montenegro Navy* / 0572440

AUXILIARIES

Notes: (1) Three 22 m inshore survey vessels BH 11, BH 12 and CH 1 are operated by the Naval Hydrological Institute.
(2) There are seven tenders BM 58, BM 65, BM 66, BM 67, BM 70 and BS 22.
(3) There are five diving tenders BRM 81, BRM 84, BRM 85, BRM 87 and BRM 88.
(4) *Alga* PV 17 is a 44 m water tanker.

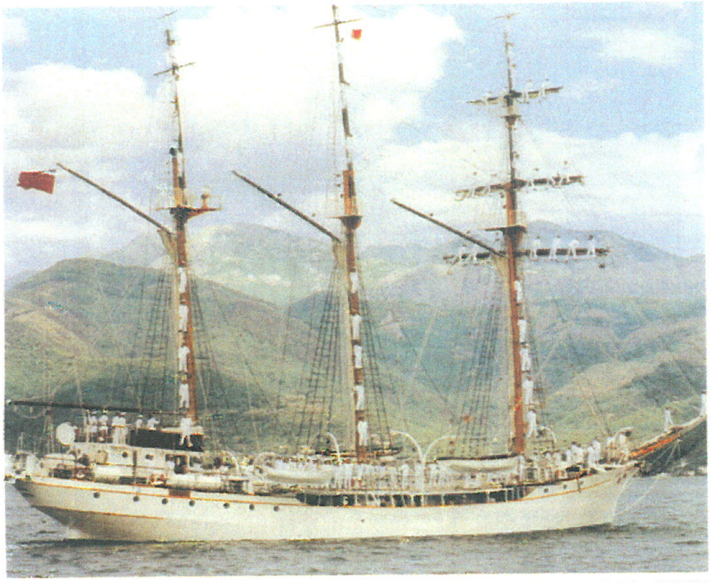
1 SAIL TRAINING SHIP (AXS)

JADRAN

Displacement, tons: 737 full load
Dimensions, feet (metres): 196.9 × 29.2 × 13.3 *(60.0 × 8.9 × 4.05)*
Main machinery: 1 Burmeister Alpha diesel; 353 hp *(263 kW)*
Speed, knots: 10.4
Radars: 1 FR 2120 and 1 FR 7061; I-band.

Comment: The contract for a barquentine sail training ship was signed on 4 September 1930 with the German shipbuilding company H C Silken Zon of Hamburg. She was launched on 25 June 1931 and arrived in Tivat on 16 July 1933. During the Second World War, she was used by the Italian Navy under the name of *Marco Polo* before being allowed to fall into disrepair. She returned to Yugoslavia in 1946 and was reconstructed in her original form at Tivat.

NEW ENTRY



JADRAN *6/2001, Vojska* / 0528417

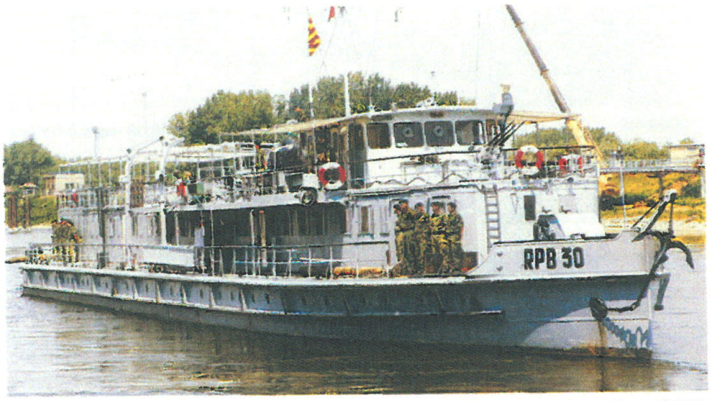
1 KOZARA CLASS (HEADQUARTERS SHIP) (PBR)

KOZARA (ex-*Oregon*, ex-*Kriemhild)* RPB 30

Displacement, tons: 695 full load
Dimensions, feet (metres): 219.8 × 31.2 × 4.6 *(67 × 9.5 × 1.4)*
Main machinery: 2 Deutz RV6M545 diesels; 800 hp(m) *(588 kW)*; 2 shafts
Speed, knots: 12
Guns: 9 Hispano Suiza 20 mm (3 triple).

Comment: Former Presidential Yacht on Danube. Built in Austria in 1940. Acts as Flagship of the Riverine Flotilla. A similar ship served in the Russian Black Sea Fleet before being transferred to Ukraine. Although previously believed to have been decommissioned, continues to be used to accommodate Riverine Flotilla Staff.

UPDATED



KOZARA *6/2003*, Serbia and Montenegro Navy* / 0572439

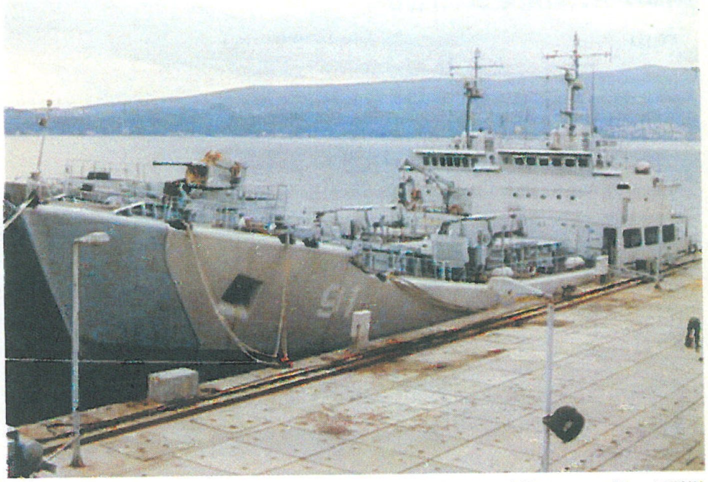
1 LUBIN CLASS (TRANSPORT SHIP) (AKR)

LUBIN PO 91

Displacement, tons: 860 full load
Dimensions, feet (metres): 190.9 × 36.1 × 9.2 *(58.2 × 11.0 × 2.8)*
Main machinery: 2 diesels; 3,500 hp(m) *(2.57 MW)*; 2 shafts; cp props
Speed, knots: 16. **Range, miles:** 1,500 at 16 kt
Complement: 43
Military lift: 150 troops; 6 tanks
Guns: 1 Bofors 40 mm/70. 4—20 mm M75. 128 mm rocket launcher for illuminants.

Comment: Fitted with bow doors and two upper-deck cranes. Ro-Ro cargo ship built in Split in the 1980s and used as an ammunition transport. Based at Tivat. This ship had been assessed decommissioned in the early 1990s but has been officially reported as operational.

NEW ENTRY



LUBIN *6/2003*, Serbia and Montenegro Navy* / 0572438

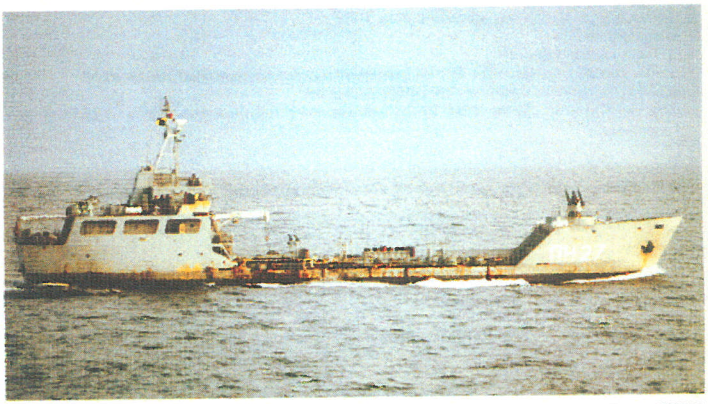
1 DRINA CLASS (AOTL)

SIPA PN 27

Displacement, tons: 430 full load
Dimensions, feet (metres): 151 × 23.6 × 10.2 *(46 × 7.2 × 3.1)*
Main machinery: 1 diesel; 300 hp(m) *(220 kW)*; 1 shaft
Speed, knots: 7
Complement: 12
Missiles: SAM: 1 SA-N-5.
Guns: 6 Hispano 20 mm (1 quad, 2 single).

Comment: Built at Kraljevic in mid-1950s. Based at Tivat.

UPDATED



SIPA *6/1998, MoD Bonn* / 0050753

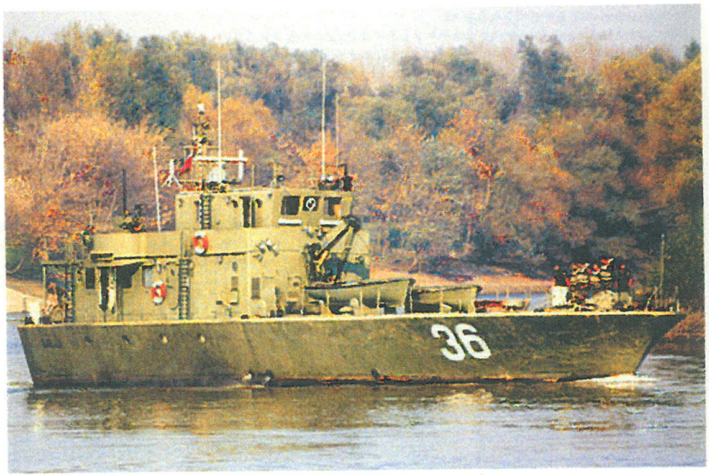
1 SABAC CLASS (DEGAUSSING VESSEL) (YDG)

SABAC RSRB 36

Displacement, tons: 110 standard
Dimensions, feet (metres): 105.6 × 23.3 × 3.9 *(32.2 × 7.1 × 1.2)*
Main machinery: 1 diesel; 528 hp(m) *(388 kW)*; 1 shaft
Speed, knots: 10. **Range, miles:** 660 at 10 kt
Complement: 20
Guns: 2—20 mm M71.
Radars: Navigation: Decca 101; I-band.

Comment: Built in 1985. Used to degauss River vessels up to a length of 50 m.

UPDATED



SABAC *6/2003*, Serbia and Montenegro* / 0572437

TUGS

Notes: There are three coastal tugs PR 37, PR 38 and PR 41 and seven harbour tugs LR 23, LR 72, LR 74, LR 75, LR 77 and LR 80.

Seychelles

Country Overview

A former British colony, the Republic of the Seychelles became independent in 1976. Situated in the western Indian Ocean, northeast of Madagascar, the archipelago consists of some 90 islands, disposed over 13,000 square miles in two groups. The 40 islands of the northern group include the principal islands: Mahé (the largest), Praslin, Silhouette and La Digue. The 50 or so low-lying coral islands in the south are mostly uninhabited. Victoria (Mahé) is the capital, largest town and principal port. Territorial seas (12 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has been declared but the limits have not been fully defined by boundary agreements.

Headquarters Appointments

Commander of the Coast Guard:
Lieutenant Colonel D Gertrude

Bases

Port Victoria, Mahé

Personnel

2004: 300 including 80 air wing and 100 marines

COAST GUARD

1 ZHUK (PROJECT 1400M) CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
FORTUNE	604	USSR	6 Nov 1982

Displacement, tons: 39 full load
Dimensions, feet (metres): 78.7 × 16.4 × 3.9 *(24 × 5 × 1.2)*
Main machinery: 2 Type M 401B diesels; 2,200 hp *(1.6 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,100 at 15 kt
Complement: 12 (3 officers)
Guns: 4—14.5 mm (2 twin) MGs.
Radars: Surface search: Furuno; I-band.

Comment: Two transferred from USSR. Second of class paid off in 1996 and used for spares.
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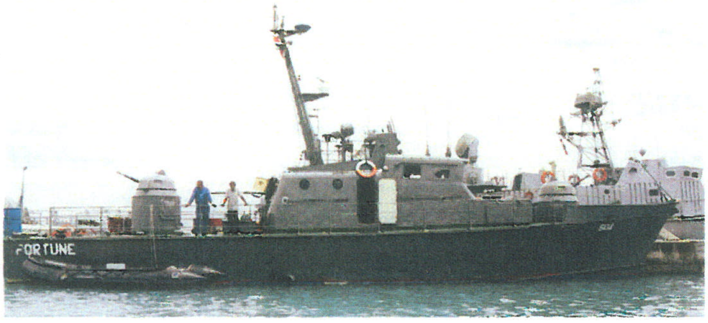


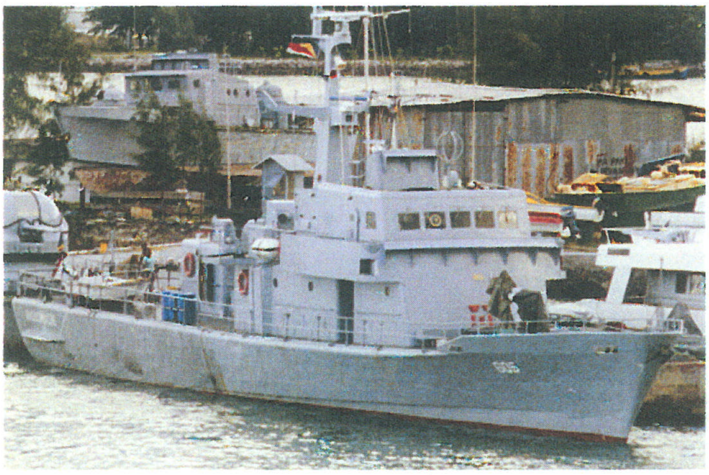
FORTUNE *6/1998, Seychelles Coast Guard* / 0050097

1 TYPE FPB 42 (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
ANDROMACHE	605	Picchiotti, Viareggio	10 Jan 1983

Displacement, tons: 268 full load
Dimensions, feet (metres): 137.8 × 26 × 8.2 *(41.8 × 8 × 2.5)*
Main machinery: 2 Paxman Valenta 16 CM diesels; 6,650 hp *(5 MW)* sustained; 2 shafts
Speed, knots: 26. **Range, miles:** 3,000 at 16 kt
Complement: 22 (3 officers)
Guns: 1 Oerlikon 25 mm. 2—7.62 mm MGs.
Radars: Surface search: 2 Furuno; I-band.

Comment: Ordered from Inma, La Spezia in November 1981. A second of class reported ordered in 1991 but the order was not confirmed.
VERIFIED



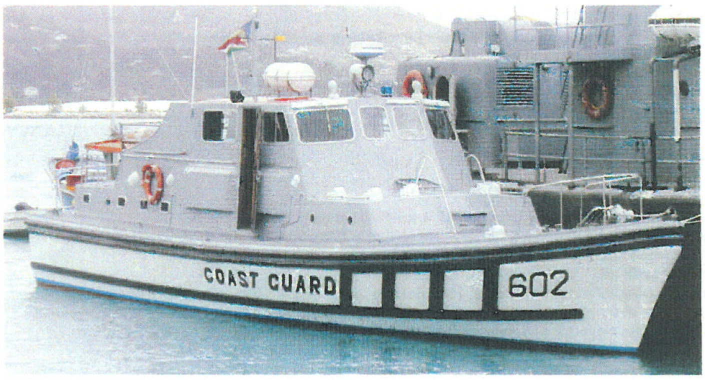
ANDROMACHE *3/1997* / 0019096

1 COASTAL PATROL CRAFT (PB)

JUNON 602

Displacement, tons: 40 full load
Dimensions, feet (metres): 60.0 × 16.7 × 5.9 *(18.3 × 5.1 × 1.8)*
Speed, knots: 20
Complement: 5
Radars: Surface search: Furuno; I-band.

Comment: Former Port and Marine Services patrol boat reintegrated into the Coast Guard in 2003.
NEW ENTRY



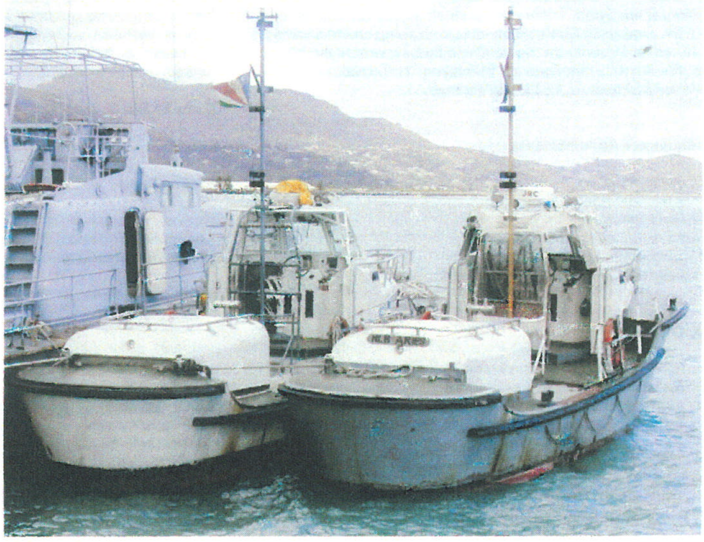
JUNON *9/2003*, Seychelles Coast Guard* / 0568333

5 PATROL CRAFT (PB)

ARIES **VIRGO** **LIBRA** **TAURUS** **PISCES**

Displacement, tons: 17.7 full load
Dimensions, feet (metres): 44.0 × 12.5 × 3.9 *(13.4 × 3.8 × 1.2)*
Main machinery: 2 General Motors Detroit 6V53 diesels; 2 shafts
Speed, knots: 13. **Range, miles:** 200 at 11 kt
Complement: 3
Radars: Surface search: Furuno; I-band.

Comment: Former US Coast Guard lifeboats (MLB) constructed in the 1960s. Three were transported to the Seychelles onboard USS *Anchorage* in October 2000 and a further two onboard USS *Tarawa* in December 2000.
NEW ENTRY



MLBs *9/2003*, Seychelles Coast Guard* / 0568334

LAND-BASED MARITIME AIRCRAFT

Numbers/Type: 1 Britten-Norman BN-2A-21 Maritime Defender.
Operational speed: 150 kt *(280 km/h)*.
Service ceiling: 18,900 ft *(5,760 m)*.
Range: 1,500 n miles *(2,775 km)*.
Role/Weapon systems: Coastal surveillance and surface search aircraft. Sensors: Search radar. Weapons: Provision for rockets or guns.
VERIFIED

BN2T-4S (Irish Police colours) *8/1997* / 0016662

Sierra Leone

Country Overview

A former British colony, Sierra Leone became independent in 1961. Located in west Africa, the country has an area of 27,699 square miles, a 217 n mile coastline with the Atlantic Ocean and is bordered to the north by Guinea and to the south by Liberia. The capital, largest city and principal port is Freetown. An EEZ has not been claimed and the country is one of a few that claims 200 n mile territorial seas.

Headquarters Appointments

Senior Officer, Navy:
Captain A B Sessay

Personnel

(a) 2004: 150 officers and men
(b) Voluntary service

Bases

Freetown

PATROL FORCES

Notes: Four to five RIBs have been acquired for inshore patrol.

1 SHANGHAI III (TYPE 062/1) CLASS (COASTAL PATROL CRAFT) (PB)

ALIMAMY RASSIN PB 103

Displacement, tons: 170 full load
Dimensions, feet (metres): 134.5 × 17.4 × 5.9 *(41 × 5.3 × 1.8)*
Main machinery: 4 Chinese L12-180A diesels; 4,400 hp(m) *(3.22 MW)* sustained; 4 shafts
Speed, knots: 25. **Range, miles:** 750 at 17 kt
Complement: 43
Guns: 4 China 37 mm/63 (2 twin); 180 rds/min to 8.5 km *(4.6 n miles)*; weight of shell 1.42 kg.
4 China 14.5 mm (2 twin) Type 69 or 4 China 25 mm (2 twin).
Radars: Surface search: Pot Head or Anritsu 726; I-band.

Comment: Reported transferred from China in 1997. Employed on patrols in coastal waters. Two further craft laid up.

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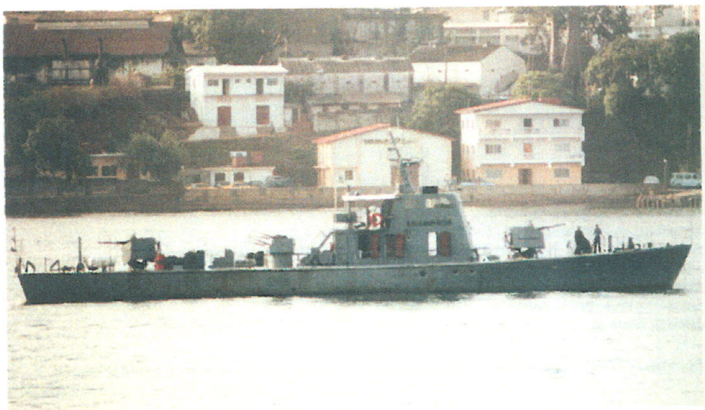


ALIMAMY RASSIN *4/2002* / 0528294

Singapore

Country Overview

Formerly under British rule, the Republic of Singapore became self-governing in 1959. It joined Malaysia in 1963, but separated from the Federation in 1965 to become a sovereign state. With an area of 247 square miles and a coastline of 104 n miles, the main island is separated from the southern tip of Malaysia by the narrow Johore Strait. There are 59 small adjacent islets. To the south the Singapore Strait, an important shipping channel linking the Indian Ocean with the South China Sea, separates the island from the Riau archipelago of Indonesia. Territorial seas (3 n miles) are claimed. An EEZ is not claimed.

Headquarters Appointments

Chief of the Navy:
Rear Admiral Ronnie Tay
Fleet Commander:
Rear Admiral Sim Gim Guan
Command Police Coast Guard:
Assistant Commissioner Foo Kia Juah

Personnel

(a) 2004: 4,500 officers and men including 1,800 conscripts
(b) National Service: two and a half years for Corporals and above; two years for the remainder
(c) 5,000 reservists (operationally trained)

Bases

Tuas (Jurong), Changi, Sembawang

Organisation

Five Commands: Fleet, Naval Diving Unit, Coastal, Naval Logistics and Training.
Fleet: First Flotilla (six Victory, six Sea Wolf, 12 Fearless).
Third Flotilla (three LSTs, Fast Craft at Civil Squadron).
Coastal Command: (four Bedok, 12 PBs)
Coastal Command operates five unmanned Giraffe 100 air/surface surveillance radar sites at Changi, Pedra Branca, St John's Island, Sultan Shoal Lighthouse and Raffles Lighthouse. Air and surface track data is passed to HQ RSN.

Prefix to Ships' Names

RSS

Special Forces

Singapore's special forces include the Naval Diving Unit, Singapore Army Special Operations Force and Singapore Police Special Tactics and Rescue unit.

Strength of the Fleet

Type	*Active*	*Building (Projected)*
Submarines	4	–
Frigates	–	6
Missile Corvettes	6	–
Offshore Patrol Vessels	11	–
Fast Attack Craft—Missile	6	–
Inshore Patrol Craft	12	–
Minehunters	4	–
LSL/LPD	4	–
LCMs	4	–

Police Coast Guard

The Police Coast Guard is a unit of the Singapore Police Force and was first established in 1924. Its role is to maintain coastal security within Singapore territorial waters and to support the Singapore Armed Forces in emergencies. Its four regional commands are Kallang (SE sector), Gul (SW sector), Seletar (NE sector) and Lim Chu Kang (NW sector). The PCG HQ is currently co-located at Kallang but will move to a new site at Brani (near Sentosa) by 2006. The Coastal Patrol Squadron and Special Task Squadron operate under central control. All vessels have Police Coast Guard on the superstructure and a white-red-white diagonal stripe on the hull except for Interceptor craft which have dark blue hulls with grey superstructures. Personnel numbers are about 1,000.

DELETIONS

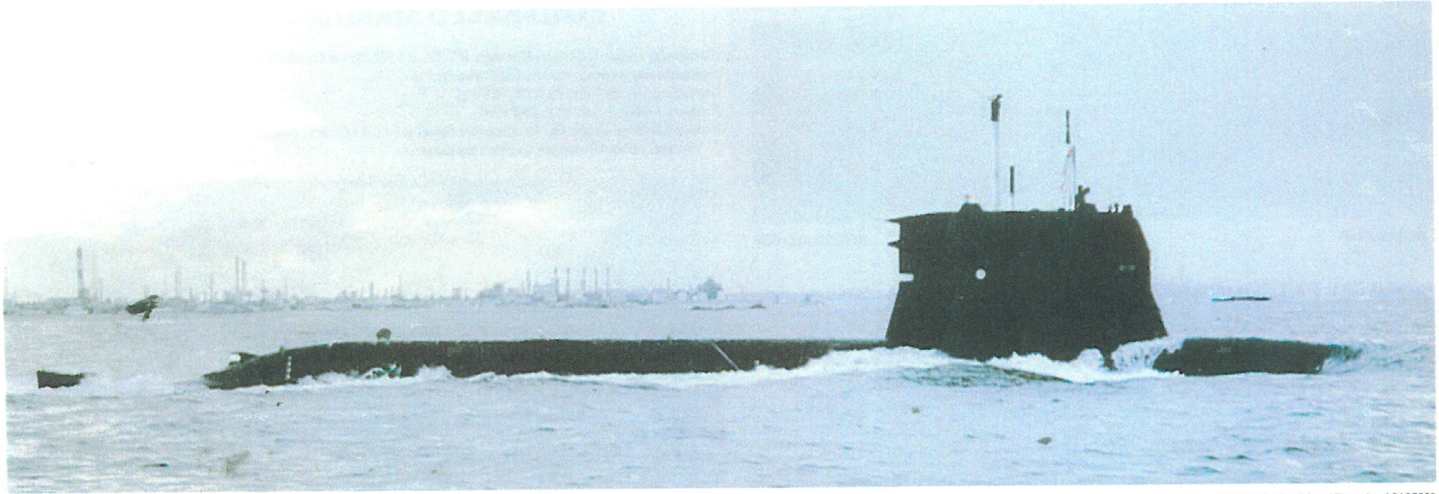
Amphibious Forces

2002 *Perseverance* (re-roled as submarine rescue ship)

Auxiliaries

2002 *Jupiter (to Indonesia)*

SUBMARINES



CONQUEROR *9/2000, Sattler/Steele* / 0105592

4 CHALLENGER (SJÖORMEN) CLASS (SSK)

Name	*Builders*	*Laid down*	*Launched*	*Commissioned*
CHALLENGER (ex-*Sjöbjörnen*)	Karlskronavarvet	1967	6 Aug 1968	28 Feb 1969
CENTURION (ex-*Sjöörmen*)	Kockums	1965	25 Jan 1967	31 July 1968
CONQUEROR (ex-*Sjölejonet*)	Kockums	1966	29 June 1967	16 Dec 1968
CHIEFTAIN (ex-*Sjohunden*)	Kockums	1966	21 Mar 1968	25 June 1969

Displacement, tons: 1,130 surfaced; 1,210 dived
Dimensions, feet (metres): 167.3 × 20 × 19 *(51 × 6.1 × 5.8)*
Main machinery: Diesel-electric; 2 Hedemora-Pielstick V12A/A2/15 diesels; 2,200 hp(m) *(1.62 MW)*; 1 ASEA motor; 1,500 hp(m) *(1.1 MW)*; 1 shaft
Speed, knots: 12 surfaced; 20 dived
Complement: 23 (7 officers)

Torpedoes: 4—21 in *(533 mm)* bow tubes. 10 FFV Type 613; anti-surface; wire-guided; passive homing to 15 km *(8.2 n miles)* at 45 kt; warhead 250 kg. 2—16 in *(400 mm)* tubes: 4 FFV Type 431; anti-submarine; wire-guided; active/passive homing to 20 km *(10.8 n miles)* at 25 kt; warhead 45 kg shaped charge.
Mines: Minelaying capability.
Weapons control: UDS SUBTICS.
Radars: Navigation: Terma; I-band.
Sonars: Plessey Hydra; hull-mounted; passive search and attack; medium frequency.

Programmes: It was announced on 23 September 1995 that a submarine would be acquired from Sweden for training purposes only. Three more of the same class acquired in July 1997 for conversion plus one more *(Sjohasten)* for spares.
Structure: Albacore hull. Twin-decked. Diving depth, 150 m *(492 ft)*. Air conditioning added for tropical service, together with battery cooling.
Operational: *Challenger* re-launched on 26 September 1997, *Conqueror* and *Centurion* on 28 May 1999 and *Chieftain* on 22 May 2001. *Challenger* and *Centurion* to remain at Karlskrona, Sweden, until mid-2004 to support RSN training. *Conqueror* was recommissioned in Singapore on 24 July 2000 and *Chieftain* on 24 August 2002. The four submarines form 171 squadron. Based at Changi.

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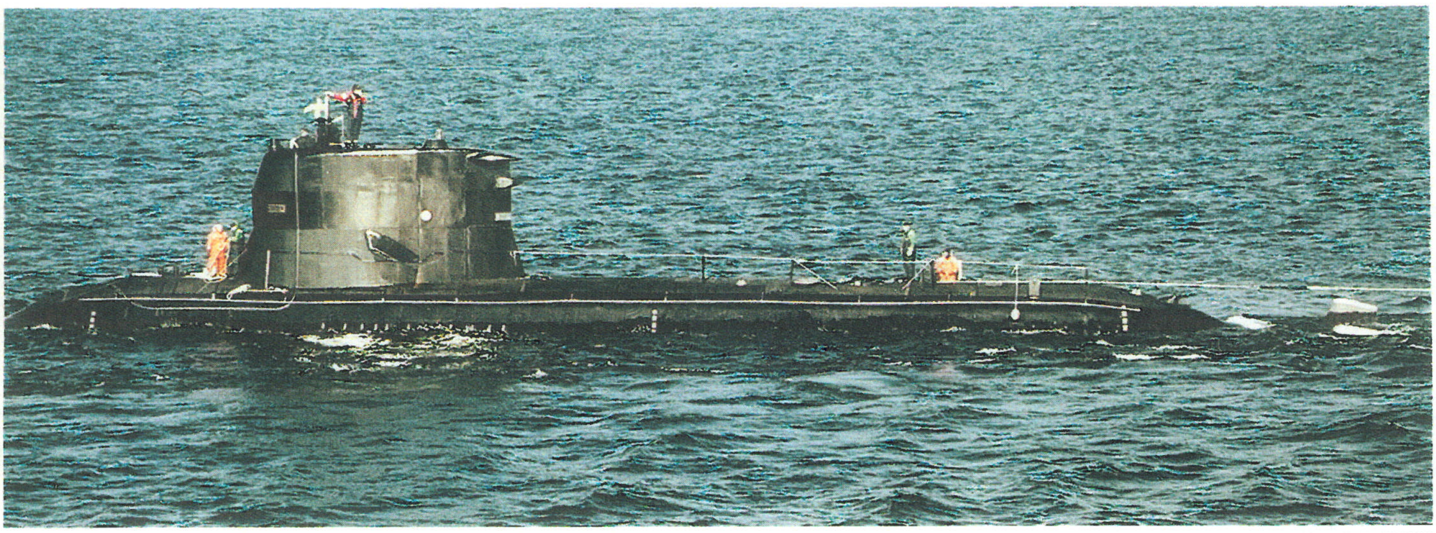


CONQUEROR *3/2000, Per Körnefeldt* / 0084434

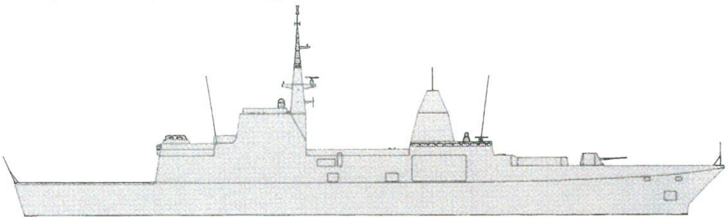
FRIGATES

0 + 6 FORMIDABLE (PROJECT DELTA) CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
FORMIDABLE	68	DCN, Lorient	14 Nov 2002	7 Jan 2004	May 2005
INTREPID	69	Singapore SB and Marine	8 Mar 2003	2004	2005
STEADFAST	70	Singapore SB and Marine	15 Nov 2003	2005	2006
TENACIOUS	71	Singapore SB and Marine	2004	2006	2007
STALWART	72	Singapore SB and Marine	2005	2007	2008
SUPREME	73	Singapore SB and Marine	2006	2008	2009

Displacement, tons: 3,200 full load
Dimensions, feet (metres): 361.0 × 52.5 × 16.4 *(110.0 × 16.0 × 5.0)*
Main machinery: CODAD; 4 MTU 20V 8000 M90 diesels; 48,276 hp *(36 kW)*; 2 shafts; cp props; bow thruster.
Speed, knots: 27
Range, miles: 4,000 at 15 kt.
Complement: 60 approx

Missiles: SSM: 8 Boeing Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: Eurosam SAAAM; 4 octuple Sylver A 43 VLS for MBDA Aster 15; command guidance active radar homing to 15 km (*8.1 n miles*) anti-missile and to 30 km *(16.2 n miles)* anti-aircraft. 32 missiles.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 Super rapid; 120 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2—20 mm. 2—12.7 mm MGs.
Torpedoes: 6—324 mm (2 triple (recessed)) tubes. Eurotorp A 244/S Mod 3; anti-submarine; active/passive homing to 7 km *(3.8 n miles)* at 33 kt; warhead 34 kg (shaped charge).



PROJECT DELTA *(Scale 1 : 1,200), Ian Sturton* / 0533892

Countermeasures: Decoys: 3 EADS NGDS 12-barrelled chaff, IR and anti-torpedo decoy launchers.
ESM: RAFAEL C-PEARL-M; intercept.
Combat Data Systems: DSTA/ST Electronics system.
Weapons Control: 2 EADS Nagir 2000 optronic directors.
Radars: Air/search: Thales Herakles 3-D radar multifunction; E/F-band
Surface search/Navigation: 2 Terma Scanter 2001; I-band.
Sonars: EDO 980 ALOFTS VDS; low frequency (2 kHz).

Helicopters: Hangar for 1 medium (NH 90, Seahawk or Cougar).

Programmes: Ordered from DCN International on 6 March 2000. First steel cut for hulls two and three on 2 October 2002. Prime Contractor is Singapore's Defence Science and Technology Agency (DSTA) who are also leading combat system integration in partnership with ST Electronics.
Structure: Derived from 'La Fayette' class but there are notable differences to accommodate the weapon and sensor fit.
Operational: It is expected that *Formidable* will become operational in 2007.

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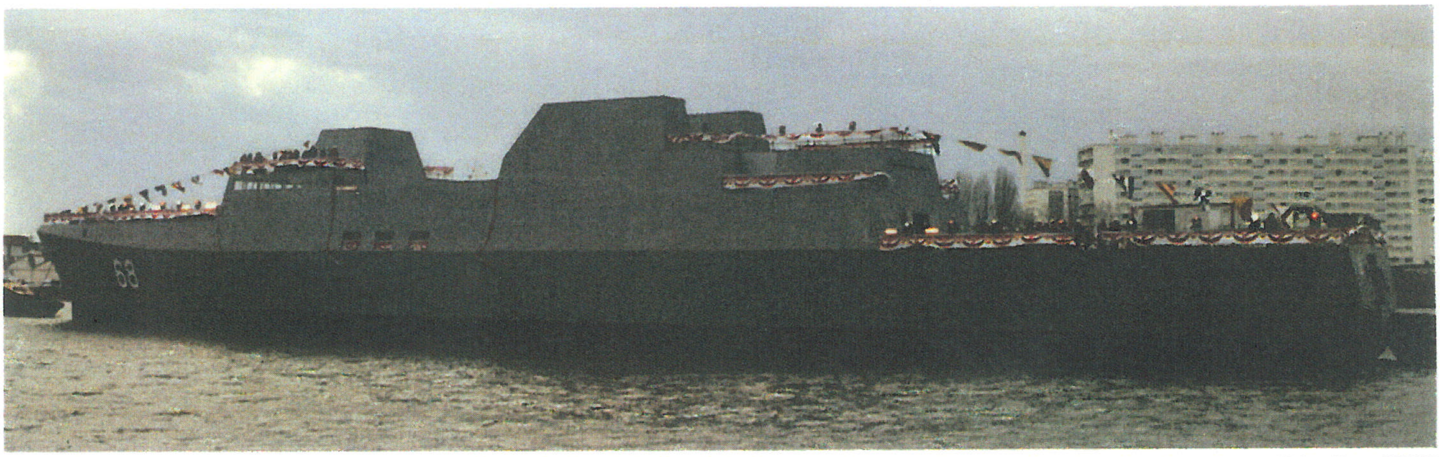

FORMIDABLE *1/2004*, Richard Scott* / 0569799

CORVETTES

6 VICTORY CLASS (FSGM)

Name	*No*	*Builders*	*Launched*	*Commissioned*
VICTORY	P 88	Lürssen Werft, Bremen	8 June 1988	18 Aug 1990
VALOUR	P 89	Singapore SB and Marine	10 Dec 1988	18 Aug 1990
VIGILANCE	P 90	Singapore SB and Marine	27 Apr 1989	18 Aug 1990
VALIANT	P 91	Singapore SB and Marine	22 July 1989	25 May 1991
VIGOUR	P 92	Singapore SB and Marine	1 Dec 1989	25 May 1991
VENGEANCE	P 93	Singapore SB and Marine	23 Feb 1990	25 May 1991

Displacement, tons: 595 full load
Dimensions, feet (metres): 204.7 oa; 190.3 wl × 27.9 × 10.2 *(62.4; 58 × 8.5 × 3.1)*
Main machinery: 4 MTU 16V 538 TB93 diesels; 15,020 hp(m) *(11 MW)* sustained; 4 shafts
Speed, knots: 35. **Range, miles:** 4,000 at 18 kt
Complement: 49 (8 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: 2 Octuple IAI/Rafael Barak I ❷ radar or optical guidance to 10 km *(5.5 m)* at 2 Mach; warhead 22 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 Super Rapid ❸; 120 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
4 CIS 50 12.7 mm MGs.
Torpedoes: 6—324 mm Whitehead B 515 (2 triple) tubes ❹. Whitehead A 244S; anti-submarine; active/passive homing to 7 km *(3.8 n miles)* at 33 kt; warhead 34 kg (shaped charge).
Countermeasures: Decoys: 2 Plessey Shield 9-barrelled chaff launchers ❺. 4 Rafael (2 twin) long-range chaff launchers to be fitted below the bridge wings.
ESM: Elisra SEWS ❻; intercept.
ECM: Rafael RAN 1101; ❼ jammer.
Combat data systems: Elbit command system. SATCOM ❽.
Weapons control: Elbit MSIS optronic director ❾.
Radars: Surface search: Ericsson/Radamec Sea Giraffe 150HC ❿; G/H-band.
Navigation: Kelvin Hughes 1007; I-band.
Fire control: 2 Elta EL/M-2221(X) ⓫; I/J/K-band.
Sonars: Thomson Sintra TSM 2064; VDS ⓬; active search and attack.

Programmes: Ordered in June 1986 to a Lürssen MGB 62 design similar to Bahrain and UAE vessels.
Modernisation: Barak launchers fitted on either side of the VDS, together with a second fire-control radar on the platform aft of the mast and an optronic director on the bridge roof. Rudder roll stabilisation retrofitted to improve sea-keeping qualities. Unidentified EW antennae have been installed below RAN 1101.
Operational: Form 188 Squadron. Designated Missile Corvettes (MCV). First live Barak firing in September 1997.

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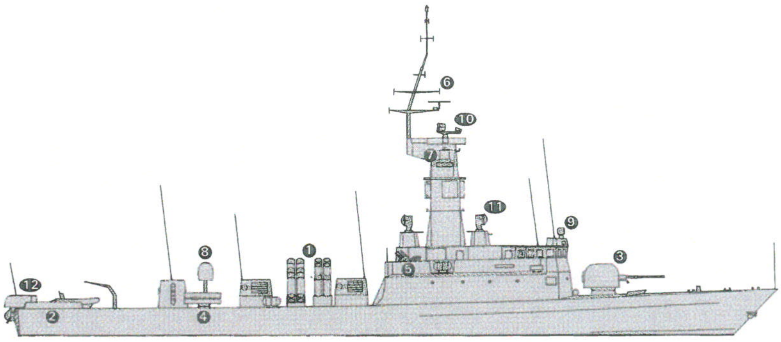

VICTORY *(Scale 1 : 600), Ian Sturton* / 0114802

VIGOUR
8/2001, John Mortimer / 0126304

VENGEANCE *8/2003*, John Mortimer* / 0569798

PATROL FORCES

12 FEARLESS CLASS (PCM/PGM)

Name	*No*	*Builders*	*Launched*	*Commissioned*
FEARLESS	94	Singapore STEC	18 Feb 1995	5 Oct 1996
BRAVE	95	Singapore STEC	9 Sep 1995	5 Oct 1996
COURAGEOUS	96	Singapore STEC	9 Sep 1995	5 Oct 1996
GALLANT	97	Singapore STEC	27 Apr 1996	3 May 1997
DARING	98	Singapore STEC	27 Apr 1996	3 May 1997
DAUNTLESS	99	Singapore STEC	23 Nov 1996	3 May 1997
RESILIENCE	82	Singapore STEC	23 Nov 1996	7 Feb 1998
UNITY	83	Singapore STEC	19 July 1997	7 Feb 1998
SOVEREIGNTY	84	Singapore STEC	19 July 1997	7 Feb 1998
JUSTICE	85	Singapore STEC	18 Oct 1997	7 Feb 1998
FREEDOM	86	Singapore STEC	18 Oct 1997	22 Aug 1998
INDEPENDENCE	87	Singapore STEC	18 Apr 1998	22 Aug 1998

Displacement, tons: 500 full load
Dimensions, feet (metres): 180.4 × 28.2 × 8.9 *(55 × 8.6 × 2.7)*
Main machinery: 2 MTU 12V 595 TE90 diesels; 8,554 hp(m) *(6.29 MW)* sustained; 2 Kamewa water-jets
Speed, knots: 20
Complement: 32 (5 officers)

Missiles: SAM: Matra Simbad twin launcher; Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 Super Rapid; 120 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg. 4 CIS 50 12.7 mm MGs.
Torpedoes: 6—324 mm Whitehead B515 (triple) tubes; (94-99) Whitehead A244S; active/passive homing to 7 km *(3.8 m)* at 33 kt; warhead 34 kg (shaped charge).
Countermeasures: Decoys: 2 GEC Marine Shield III 102 mm sextuple fixed chaff launchers.
ESM: Elisra NS-9010C; intercept.
Weapons control: ST 3100 WCS. Elbit MSIS optronic director.
Radars: Surface search and fire control: Elta EL/M-2228(X); I-band.
Navigation: Kelvin Hughes 1007; I-band.
Sonars: Thomson Sintra TSM 2362 Gudgeon; hull-mounted; active attack; medium frequency (94-99 only).
Towed array fitted in *Brave*.

Programmes: Contract awarded on 27 February 1993 for 12 patrol vessels to Singapore Shipbuilding and Engineering.
Structure: First six are ASW specialist ships. All have water-jet propulsion. Second batch were to have been fitted with Gabriel II SSMs but this plan has been shelved. MSIS director being fitted. *Fearless* modified with new EW radome on mainmast. Simbad SAM in *Brave* replaced by towed array. Other craft may be similarly converted. *Sovereignty* has deck crane to facilitate special forces operations.
Operational: First six serve with 189 Squadron; second six with 182 Squadron. *Unity* is to be used as a test bed for new technologies including an Indep 21 combat system. *Courageous* badly damaged in collision on 3 January 2003 and may not be repaired.

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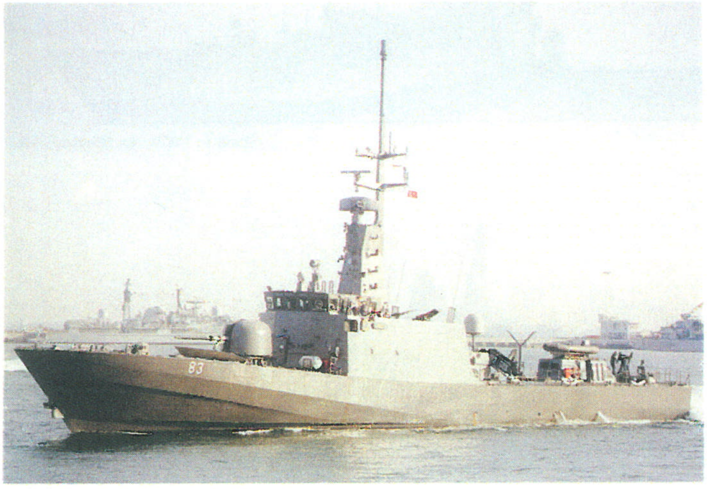
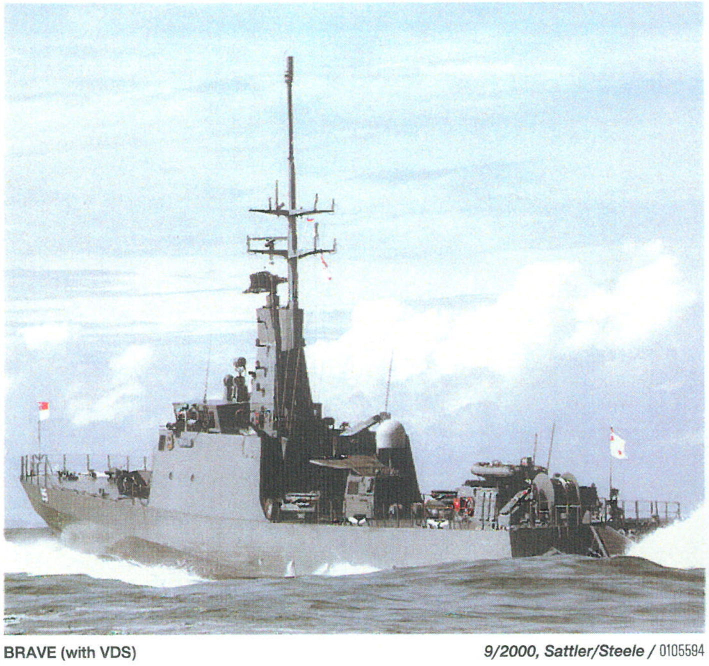


UNITY *5/2001, David Boey* / 0114800



BRAVE (with VDS) *9/2000, Sattler/Steele* / 0105594

6 SEA WOLF CLASS (FAST ATTACK CRAFT—MISSILE) (PTGFM)

Name	*No*	*Builders*	*Commissioned*
SEA WOLF	P 76	Lürssen Werft, Vegesack	1972
SEA LION	P 77	Lürssen Werft, Vegesack	1972
SEA DRAGON	P 78	Singapore SBEC	1974
SEA TIGER	P 79	Singapore SBEC	1974
SEA HAWK	P 80	Singapore SBEC	1975
SEA SCORPION	P 81	Singapore SBEC	29 Feb 1976

Displacement, tons: 226 standard; 254 full load
Dimensions, feet (metres): 147.3 × 23 × 8.2 *(44.9 × 7 × 2.5)*
Main machinery: 4 MTU 16V 538 TB92 diesels; 13,640 hp(m) *(10 MW)* sustained; 4 shafts
Speed, knots: 35. **Range, miles:** 950 at 30 kt; 1,800 at 15 kt
Complement: 41 (5 officers)

Missiles: SSM: 4 McDonnell Douglas Harpoon (2 twin); active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
4 IAI Gabriel I launchers; radar or optical guidance; semi-active radar homing to 20 km *(10.8 n miles)* at 0.7 Mach; warhead 75 kg.
SAM: 1 Matra Simbad twin launcher; Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg.
Guns: 1 Bofors 57 mm/70; 200 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg.
Countermeasures: Decoys: 2 Hycor Mk 137 sextuple RBOC chaff launchers. 4 Rafael (2 twin) long-range chaff launchers.
ESM/ECM: RQN 3B (INS-3) intercept and jammer. TDF-205 DF.
Weapons control: Elbit MSIS optronic director to be fitted.
Radars: Surface search: Racal Decca; I-band.
Fire control: Signaal WM28/5; I/J-band; range 46 km *(25 n miles)*.

Programmes: Lürssen Werft FPB 45 type. Designated Missile Gunboats (MGB).
Modernisation: *Sea Hawk* was the first to complete refit in January 1988 with two sets of twin Harpoon launchers replacing the triple Gabriel launcher. The remainder were converted by December 1990 with the exception of *Sea Wolf* which finished refit in Spring 1991. ECM equipment has also been fitted on a taller mast. SATCOM and GPS installed. There have also been some superstructure changes. The Bofors 40 mm gun has been replaced with a Matra Simbad SAM launcher. Fitted with four launch pedestals for Gabriel and racks for eight Harpoons, though usual warload will consist of two Gabriel and four harpoons. Retrofitted with MSIS optronic director forward of the mainmast. Expected to pay off as new frigates enter service from 2005.

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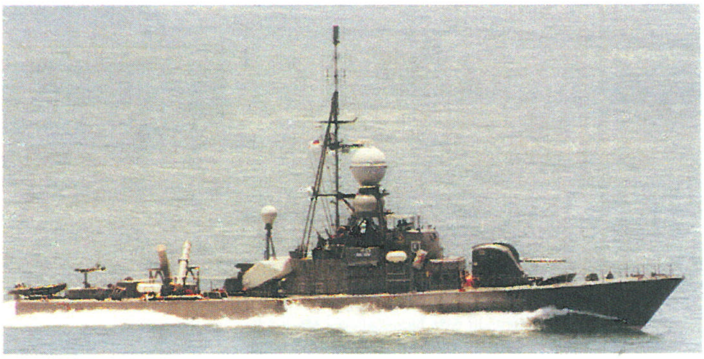
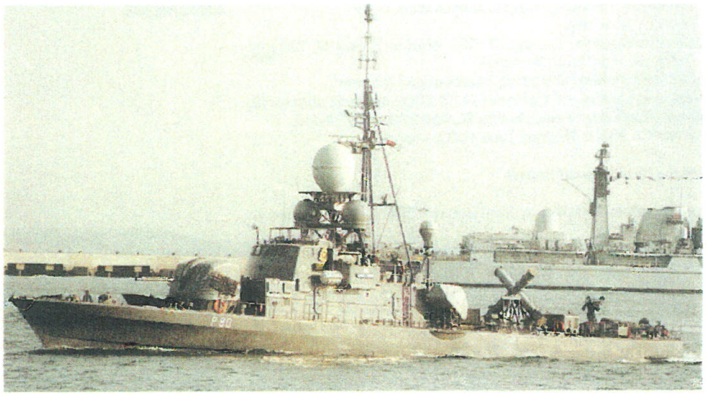


SEA LION *3/1999, van Ginderen Collection* / 0080577



SEA HAWK *5/2001, David Boey* / 0114799

12 INSHORE PATROL CRAFT (PB)

FB 31-42

Displacement, tons: 20 full load
Dimensions, feet (metres): 47.6 × 13.8 × 3.6 *(14.5 × 4.2 × 1.1)*
Main machinery: 2 MAN D2848 LE 401 diesels; 1,341 hp(m) *(1 MW)*; 2 Hamilton 362 water-jets
Speed, knots: 30
Complement: 5
Guns: 1—40 mm grenade launcher. 1—12.7 mm MG. 2—7.62 mm MGs.
Radars: Surface search: Racal Decca; I-band.

Comment: Built by Singapore SBEC and delivered in 1990-91. Based at Tuas. Designated Fast Boats (FB). Some are kept in storage at Tuas. Similar to Police 'PT 1-19' class.

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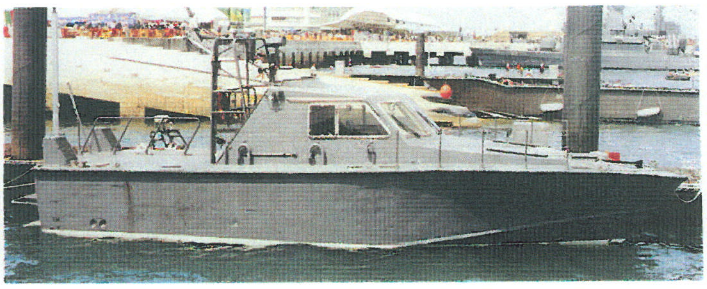

FB 31 *5/2001, David Boey* / 0114798

LAND-BASED MARITIME AIRCRAFT

Notes: (1) The Air Force also has 50 A4-SU Skyhawks, 7 F-16A/B and 18 F-16C/D with 30 more on order.
(2) There are also six CH-47D used for maritime tasks.

Numbers/Type: 4 Grumman E-2C Hawkeye.
Operational speed: 323 kt *(598 km/h).*
Service ceiling: 30,800 ft *(9,390 m).*
Range: 1,000 n miles *(1,850 km).*
Role/Weapon systems: Delivered in 1987 for air control and surveillance of shipping in sea areas around Singapore. Sensors: APS-138 radar; datalink for SSM targeting. Weapons: Unarmed.

UPDATED

HAWKEYE *9/2003*, David Boey* / 0567531

Numbers/Type: 5 Fokker F50 Mk 2S Enforcer.
Operational speed: 220 kt *(463 km/h).*
Service ceiling: 29,500 ft *(8,990 m).*
Range: 2,700 n miles *(5,000 km).*
Role/Weapon systems: In service from September 1995. Part of Air Force 121 Squadron but with mixed crews and under naval op con. Sensors: Texas Instruments APS-134(V)7 radar; GEC FLIR; Elta ESM. Jammer fitted under wing-tip. Weapons: Harpoon ASM; mines; A-244S torpedoes.

UPDATED

FOKKER F 50 *9/2003*, David Boey* / 0567532

AMPHIBIOUS FORCES

Notes: The Tiger 40 hovercraft acquired in 1997 is beyond repair but the design may be used again for a repeat order.

4 ENDURANCE CLASS (LPDM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ENDURANCE	L 207	Singapore Technologies Marine, Banoi	26 Mar 1997	14 Mar 1998	18 Mar 2000
RESOLUTION	L 208	Singapore Technologies Marine, Banoi	22 Oct 1997	1 Aug 1998	18 Mar 2000
PERSISTENCE	L 209	Singapore Technologies Marine, Banoi	3 Apr 1998	13 Mar 1999	7 Apr 2001
ENDEAVOUR	L 210	Singapore Technologies Marine, Banoi	15 Oct 1998	12 Feb 2000	7 Apr 2001

Displacement, tons: 8,500 full load
Dimensions, feet (metres): 462.6 pp × 68.9 × 16.4 *(141 × 21 × 5)*
Main machinery: 2 Ruston 16RK 270 diesels; 12,000 hp(m) *(8.82 MW)*; 2 shafts; Kamewa cp props; bow thruster
Speed, knots: 15. **Range, miles:** 10,400 at 12 kt
Complement: 65 (8 officers)
Military lift: 350 troops; 18 tanks; 20 vehicles; 4 LCVP

Missiles: SAM: 2 Matra Simbad twin launchers for Mistral ➊; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg. 2 Barak octuple launchers may be fitted in due course.
Guns: 1 Otobreda 76 mm/62 Super Rapid ➋; 120 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
5—12.7 mm MGs.
Countermeasures: Decoys: 2 GEC Marine Shield III 102 mm sextuple fixed chaff launcher.
ESM/ECM: Rafael RAN 1101; intercept and jammer.
Weapons control: CS Defense NAJIR 2000 optronic director ➌.
Radars: Air/surface search: Elta EL/M-2238 ➍; E/F-band.
Navigation: Kelvin Hughes Type 1007; I-band.

Helicopters: 2 Super Pumas.

Programmes: Ordered in September 1994 and confirmed in mid-1996.
Structure: US drive through design with bow and stern ramps. Single intermediate deck with three hydraulic ramps. Helicopter platform aft. Indal ASIST helo handling system. Dockwell for four LCUs and davits for four LCVPs. Two 25 ton cranes. Four 36 m self-propelled pontoons can be secured to winching points on the ships' sides.
Operational: *Endurance* completed the RSN's first round-the-world deployment in late 2000. *Endurance* deployed to the Gulf in October 2003 as part of coalition forces in Iraq. Based at Changi. Form 191 Squadron.

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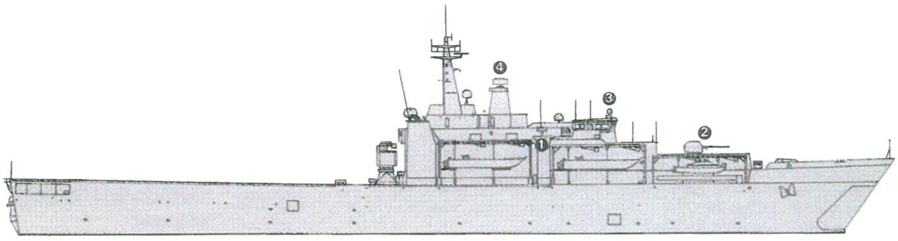
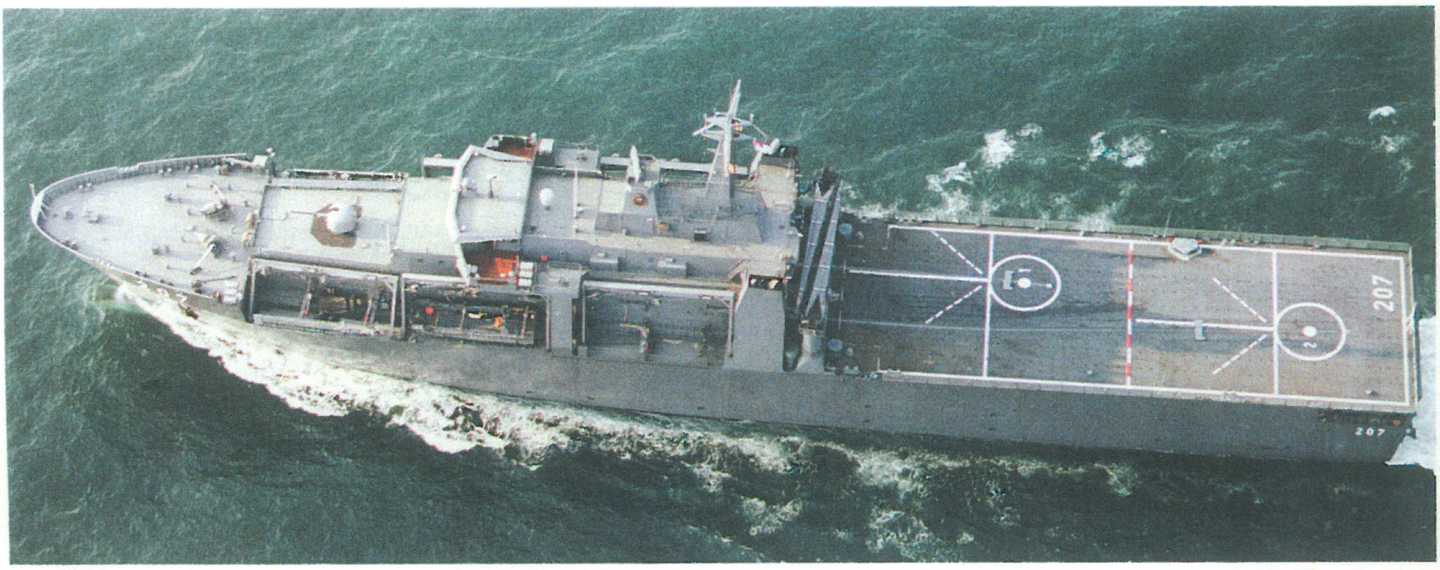


ENDURANCE *(Scale 1 : 1,200), Ian Sturton* / 0114801

RESOLUTION *10/2002*, Hachiro Nakai* / 0554727



ENDURANCE *2/2001, Michael Nitz* / 0533889

4 RPL TYPE (LCU)

RPL 60-63

Displacement, tons: 151 standard
Dimensions, feet (metres): 120.4 × 28 × 5.9 *(36.7 × 8.5 × 1.8)*
Main machinery: 2 MAN D2540MLE diesels; 860 hp(m) *(632 kW)*; 2 Schottel props
Speed, knots: 10.7
Complement: 6
Military lift: 2 tanks or 450 troops or 110 tons cargo (fuel or stores)

Comment: First pair built at North Shipyard Point, second pair by Singapore SBEC. First two launched August 1985, next two in October 1985. Cargo deck 86.9 × 21.6 ft *(26.5 × 6.6 m)*. Bow ramp suitable for beaching.

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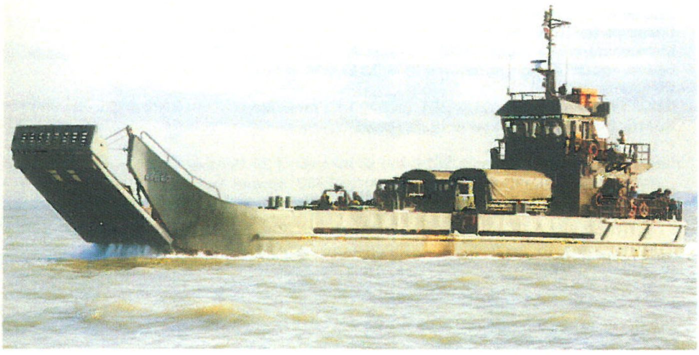

RPL 60 *6/2001, John Mortimer* / 0126301

30 LANDING CRAFT UTILITY (LCU)

Dimensions, feet (metres): 75.4 × 19.7 × 2.6 *(23 × 6 × 0.8)*
Main machinery: 2 MAN 2842 LZE diesels; 4,400 hp(m) *(3.23 MW)*; 2 Kamewa water-jets
Speed, knots: 20. **Range, miles:** 180 at 15 kt
Complement: 4
Military lift: 18 tons
Guns: 2—12.7 mm MGs or 40 mm grenade launchers.

Comment: This is a larger and much faster version of the LCVPs. Being built from 1993. Designated Fast Craft Utility (FCU). Pennant numbers in the 300 series.

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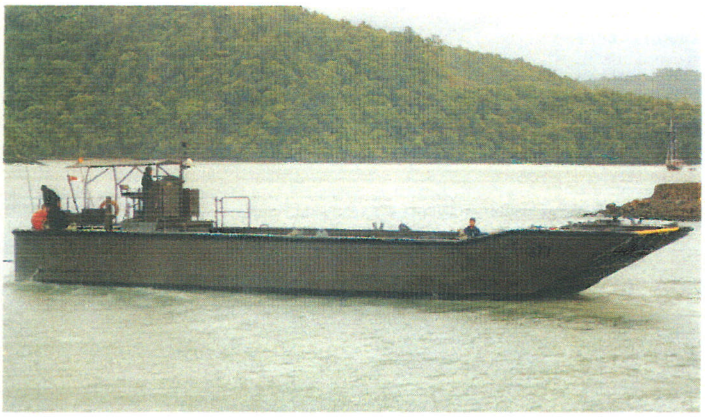


FCU 377 *10/2003*, Hartmut Ehlers* / 0567533

100 LANDING CRAFT (LCVP/FCEP)

Displacement, tons: 4 full load
Dimensions, feet (metres): 44.6 × 12.1 × 2 *(13.6 × 3.7 × 0.6)*
Main machinery: 2 MAN D2866 LE diesels; 816 hp(m) *(600 kW)*; sustained; 2 Hamilton 362 water-jets
Speed, knots: 20. **Range, miles:** 100 at 20 kt
Complement: 3
Military lift: 4 tons or 30 troops

Comment: Fast Craft, Equipment and Personnel (FCEP), built by Singapore SBEC from 1989 and are used to transport troops around the Singapore archipelago. They have a single bow ramp and can carry a rifle platoon. More than 25 are in service and the rest in storage. Have numbers in the 500 and 800 series except for those carried in LSTs.

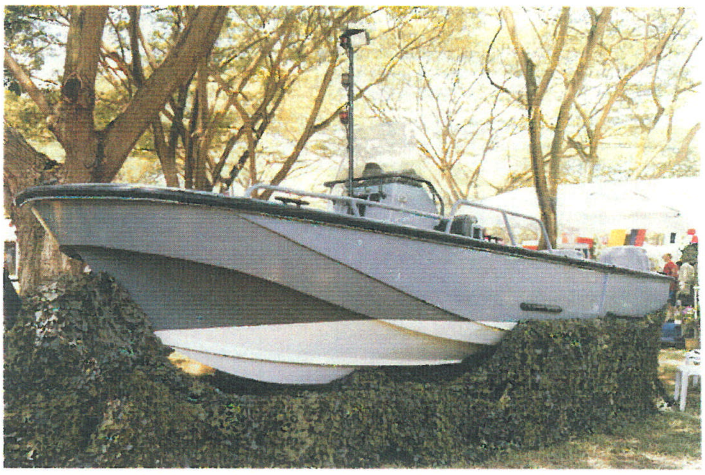
UPDATED

LCVPs *8/2003*, David Boey* / 0567534

10 DIVING SUPPORT CRAFT (YTB)

Comment: Boston Whalers used by the Naval Diving Unit. Armed with 7.62 mm MGs and 40 mm grenade launchers.

UPDATED



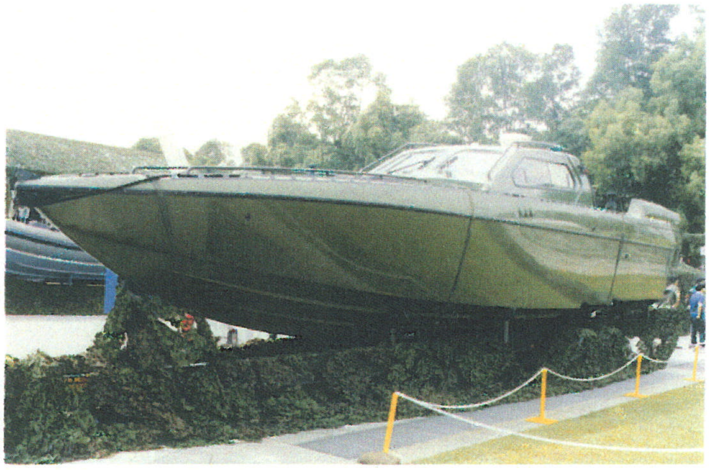
BOSTON WHALER *8/2000, David Boey* / 0105601

6 FAST INTERCEPT CRAFT (HSIC)

Displacement, tons: 12.5 full load
Dimensions, feet (metres): 47.6 × 9.4 × 4.4 *(14.5 × 2.85 × 1.35)*
Main machinery: Triple Seatek diesels coupled to Trimax drives
Speed, knots: 55+
Guns: 2 CIS 40 mm AGL.
2 CIS 50 12.7 mm MGs.
1—7.62 mm GPMG.
Radars: Raytheon SL 72.

Comment: Details are of craft used by Naval Diving Unit. The multistep planing hull design is similar to that in UK service. At least five other planing and wave-piercing craft are reported to be in service with special forces units.

UPDATED



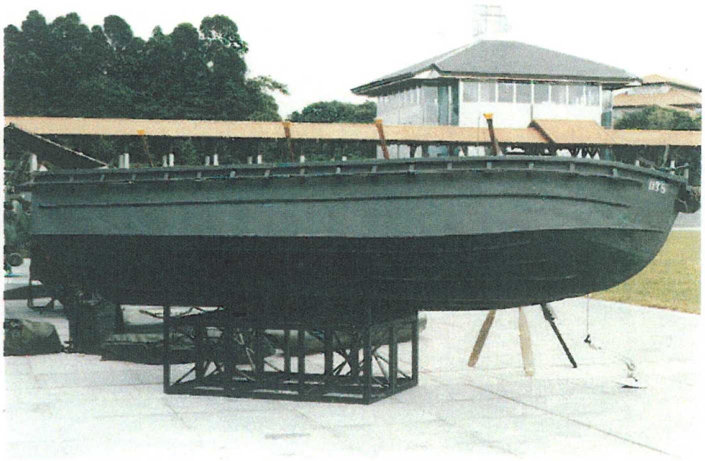
FIC 145 *9/2002*, David Boey* / 0554729

450 ASSAULT CRAFT (LCA)

Dimensions, feet (metres): 17.7 × 5.9 × 2.3 *(5.4 × 1.8 × 0.7)*
Main machinery: 1 outboard; 50 hp(m) *(37 kW)*
Speed, knots: 12
Military lift: 12 troops
Guns: 1—7.62 mm MG or 40 mm grenade launcher.

Comment: Built by Singapore SBEC. Man-portable craft which can carry a section of troops in the rivers and creeks surrounding Singapore island. Numbers are approximate.

VERIFIED



ASSAULT CRAFT *9/1995, David Boey* / 0080588

MINE WARFARE FORCES

4 BEDOK (LANDSORT) CLASS (MINEHUNTERS) (MHC)

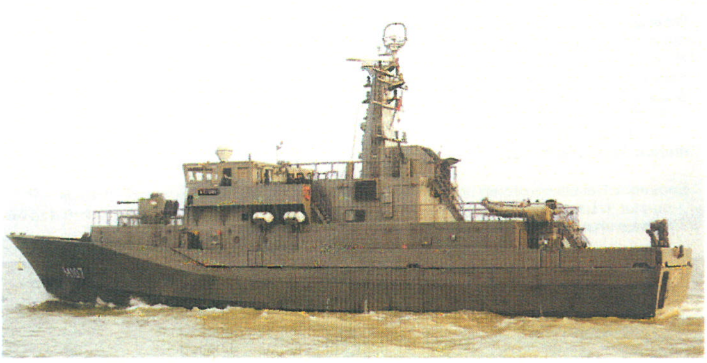
Name	*No*	*Builders*	*Launched*	*Commissioned*
BEDOK	M 105	Kockums/Karlskrona	24 June 1993	7 Oct 1995
KALLANG	M 106	Singapore Shipbuilding	29 Jan 1994	7 Oct 1995
KATONG	M 107	Singapore Shipbuilding	8 Apr 1994	7 Oct 1995
PUNGGOL	M 108	Singapore Shipbuilding	16 July 1994	7 Oct 1995

Displacement, tons: 360 full load
Dimensions, feet (metres): 155.8 × 31.5 × 7.5 *(47.5 × 9.6 × 2.3)*
Main machinery: 4 Saab Scania diesels; 1,592 hp(m) *(1.17 MW)*; coupled in pairs to 2 Voith Schneider props
Speed, knots: 15. **Range, miles:** 2,000 at 10 kt
Complement: 31 (5 officers)

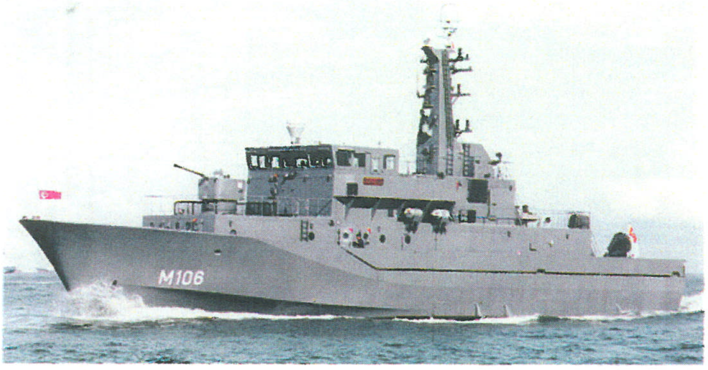
Guns: 1 Bofors 40 mm/70. 4—12.7 mm MGs.
Mines: 2 rails.
Weapons control: Thomson-CSF TSM 2061 Mk II minehunting and mine disposal system. Signaal WM20 director.
Radars: Navigation: Norcontrol DB 2000; I-band.
Sonars: Thomson-CSF TSM 2022; hull-mounted; minehunting; high frequency.

Programmes: Kockums/Karlskrona design ordered in February 1991. *Bedok* started trials in Sweden in December 1993, and was shipped to Singapore in early 1994 to complete. Prefabrication work done for the other three in Sweden with assembly and fitting out in Singapore at Benoi Basin.
Structure: GRP hulls. Two PAP 104 Mk V ROVs embarked. Racal Precision Navigation system. Two sets of Swedish SAM minesweeping system. Magnavox GPS.
Operational: Based at Tuas.

VERIFIED



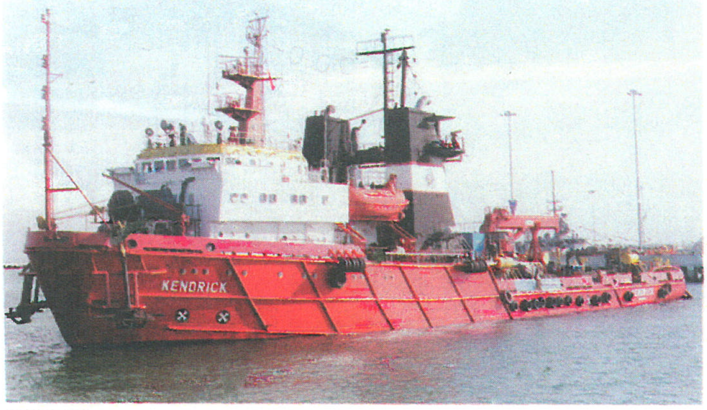
KATONG *6/2001, John Mortimer* / 0126303



KALLANG *10/2001, Chris Sattler* / 0525922

AUXILIARIES

Notes: (1) An oil rig supply ship MV *Ocean Explorer* has been chartered as an unarmed training vessel. Orange hull with white superstructure.
(2) There are two Floating Docks with a lift of 600 tons. *FD 1* (to be decommissioned in 2003) at Tuas and *FD 2* at Changi.
(3) A 2,700 ton oil rig supply ship MV *Kendrick*, built in Poland in 1985, has been chartered to support submarine rescue operations. Additional roles include acting as a target ship for submarine torpedo firings and torpedo recovery.
(4) Decommissioned LSL RSS *Perseverance* re-roled as submarine rescue ship. With an orange hull and white superstructure she has been registered as MV *Perseverance*.



KENDRICK *5/2001, David Boey* / 0114796

POLICE COAST GUARD

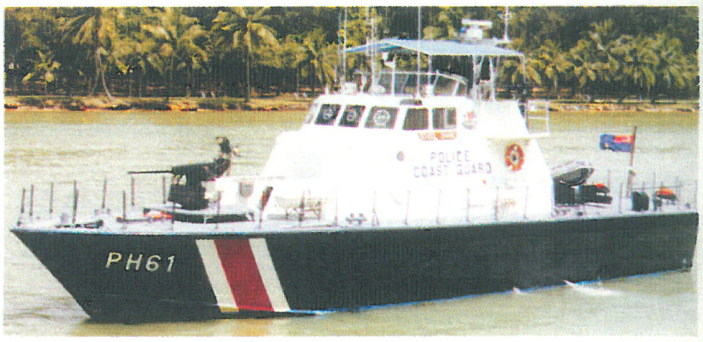
12 SHARK CLASS (WPB)

HAMMERHEAD SHARK (ex-*Swift Archer*)	PH 50 (ex-P 16)
MAKO SHARK (ex-*Swift Lancer*)	PH 51 (ex-P 12)
WHITE SHARK (ex-*Swift Swordsman*)	PH 52 (ex-P 14)
BLUE SHARK (ex-*Swift Combatant*)	PH 53 (ex-P 18)
TIGER SHARK (ex-*Swift Knight*)	PH 54 (ex-P 11)
BASKING SHARK (ex-*Swift Warrior*)	PH 55 (ex-P 15)
SANDBAR SHARK (ex-*Swift Chieftain*)	PH 56 (ex-P 23)
THRESHER SHARK (ex-*Swift Conqueror*)	PH 57 (ex-P 21)
WHITETIP SHARK (ex-*Swift Warlord*)	PH 58 (ex-P 17)
BLACKTIP SHARK (ex-*Swift Challenger*)	PH 59 (ex-P 19)
GOBLIN SHARK (ex-*Swift Cavalier*)	PH 60 (ex-P 20)
SCHOOL SHARK (ex-*Swift Centurion*)	PH 61 (ex-P 22)

Displacement, tons: 45.7 full load
Dimensions, feet (metres): 74.5 × 20.3 × 5.2 *(22.7 × 6.2 × 1.6)*
Main machinery: 2 Deutz BA16M816 diesels; 2,680 hp(m) *(1.96 MW)* sustained; 2 shafts
Speed, knots: 32. **Range, miles:** 550 at 20 kt; 900 at 10 kt
Complement: 15
Guns: 1 Oerlikon 20 mm GAM-BO1. 2 CIS 90 12.7 mm MGs.
Radars: Surface search: Decca 1226; I-band.

Comment: Built by Singapore SBEC and all completed 20 October 1981 for the Navy. First four transferred from the Navy on 15 February 1993, second four on 8 April 1994, last four on 7 November 1996. All to be fitted with ARPA radar in due course. Employed on territorial waters patrol.

UPDATED



SCHOOL SHARK *4/2002*, David Boey* / 0554730

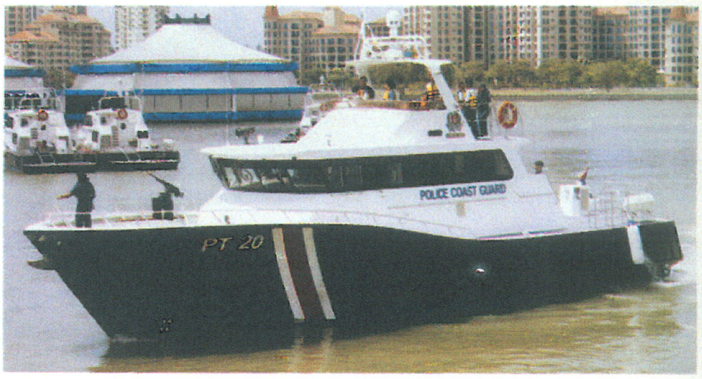
2 COMMAND CRAFT (WPB)

MANTA RAY PT 20 **EAGLE RAY** PT 30

Dimensions, feet (metres): 65.6 × 19.7 × 3.3 *(20.0 × 6.0 × 1.0)*
Main machinery: 2 MTU 16V 2000 M90 diesels; 2 Hamilton 521 water-jets
Speed, knots: 30
Complement: 5
Guns: 2—7.62 mm MGs.

Comment: Built by Asia-Pacific Geraldton, Singapore to a Geraldton, Australia design. These command craft are larger versions of the 18 m patrol craft.

NEW ENTRY



MANTA RAY *4/2002*, David Boey* / 0554731

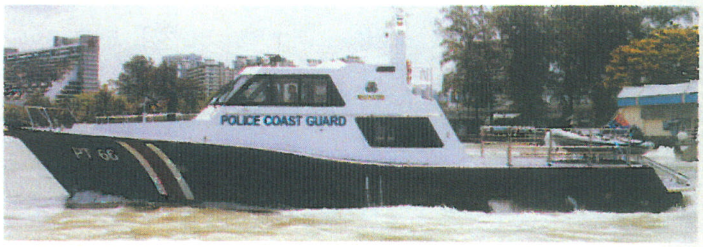
25 PATROL CRAFT (WPB)

PT 21-29 **PT 31-39** **PT 61-67**

Dimensions, feet (metres): 59.1 × 17.7 × 3 *(18 × 5.4 × 0.9)*
65.6 × 19.7 × 3.3 *(20 × 6 × 1)* (command craft)
Main machinery: 2 MTU 16V 2000M 90 diesels; 2 Hamilton 521 waterjets
Speed, knots: 40
Complement: 5

Comment: Order placed 7 January 1998 with Asia Pac Geraldton for two Command craft (PT 20 and PT 30), 18 smaller patrol craft built by Geraldton Boats, Australia. A further seven patrol craft delivered late 2000.

UPDATED



PT 66 *4/2002*, David Boey* / 0554732

19 PATROL CRAFT (WPB)

PT 1-19

Displacement, tons: 20 full load
Dimensions, feet (metres): 47.6 × 13.8 × 3.9 *(14.5 × 4.2 × 1.2)*
Main machinery: 2 MAN D2542MLE diesels; 1,076 hp(m) *(791 kW)*; or MTU 12V 183 TC91 diesels; 1,200 hp(m) *(882 kW)* maximum; 2 shafts
Speed, knots: 30. **Range, miles:** 310 at 22 kt
Complement: 4 plus 8 spare berths
Guns: 1—7.62 mm MG.
Radars: Surface search: Furuno or Racal Decca Bridgemaster; I-band.

Comment: First 13 completed by Singapore SBEC between January and August 1984, two more completed February 1987 and eight more (including two Command Boats) in 1989. Of aluminium construction. Four are operated by Customs and Excise. There are differences in the deckhouses between earlier and later vessels. Employed on patrol duties in southern territorial waters.

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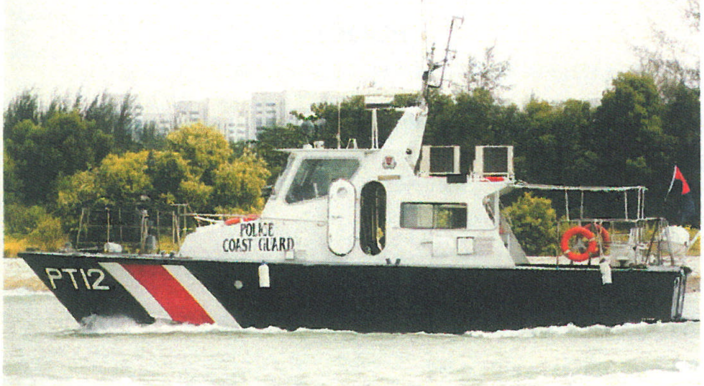


PT 12 *2/2002, Mick Prendergast* / 0525921

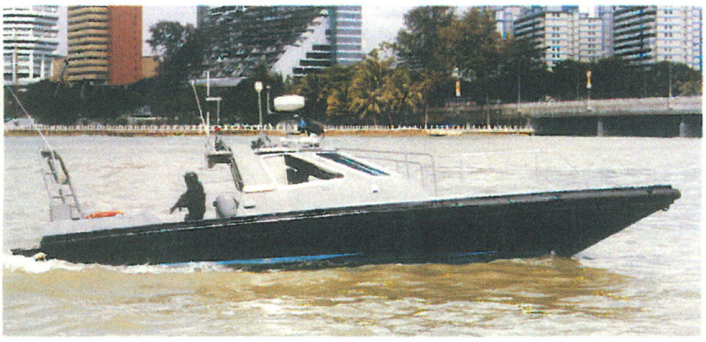
11 INTERCEPTOR CRAFT (PBF)

SAILFISH PK 10
SPEARFISH PK 20
WHITE MARLIN PK 21
SILVER MARLIN PK 22
STRIPED MARLIN PK 23
BLACK MARLIN PK 24
BLUE MARLIN PK 25
JUMPING MARLIN PK 26
BILLFISH PK 30
SWORDFISH PK 40
SPIKEFISH PK 50

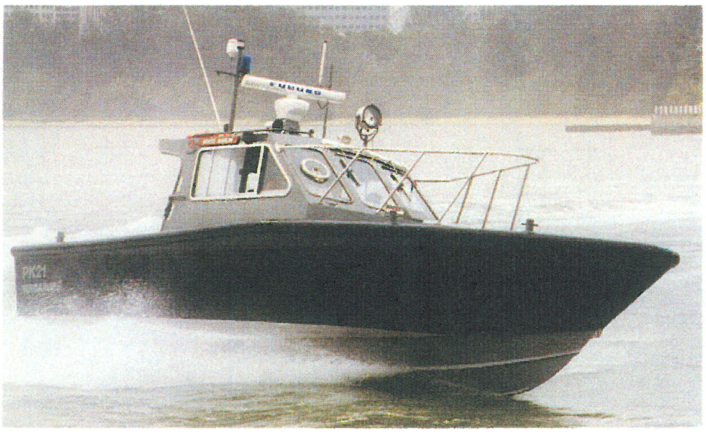
Dimensions, feet (metres): 42 × 10.5 × 1.6 *(12.8 × 3.2 × 0.5)*
Main machinery: 3 Mercruiser 502 Magnum diesels; 3 shafts
Speed, knots: 50
Complement: 5
Guns: 1—7.62 mm MG.

Comment: First five built locally and delivered in 1995. Colours have been changed to dark blue hulls and grey superstructures, to make the craft less visible at sea. Six more ordered from Pro Marine/North Shipyard in 1999 to a slightly different design, with twin outboard motors.

UPDATED



SWORDFISH *4/2002*, David Boey* / 0554733



WHITE MARLIN *1/2000, David Boey* / 0105606

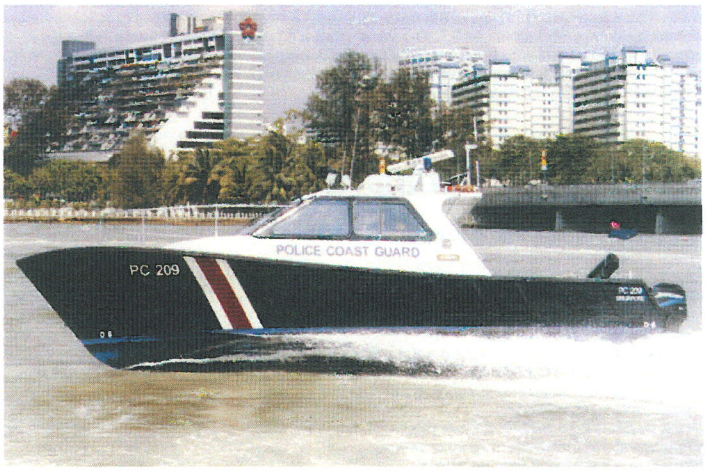
32 FAST RESPONSE CRAFT (PBF)

PC 201-232

Dimensions, feet (metres): 37.7 × 10.8 × 1.6 *(11.5 × 3.3 × 0.5)*
Main machinery: 3 Mercury outboard motors; 750 hp *(560 kW)*
Speed, knots: 40

Comment: Order placed August 2000 with Asia Pac Geraldton for 20 craft delivered in 2002. A further twelve craft were later added.

UPDATED



PC 209 *4/2002*, David Boey* / 0554734

HARBOUR CRAFT

Comment: There are large numbers of harbour craft, many of them armed, with PC numbers. These include four RHIBs with Yamaha 200 hp outboards capable of 43 kt, and with pennant numbers PJ 1-4.

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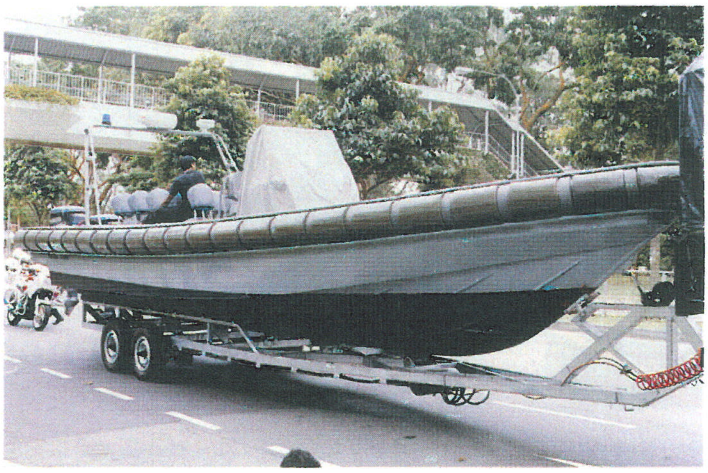
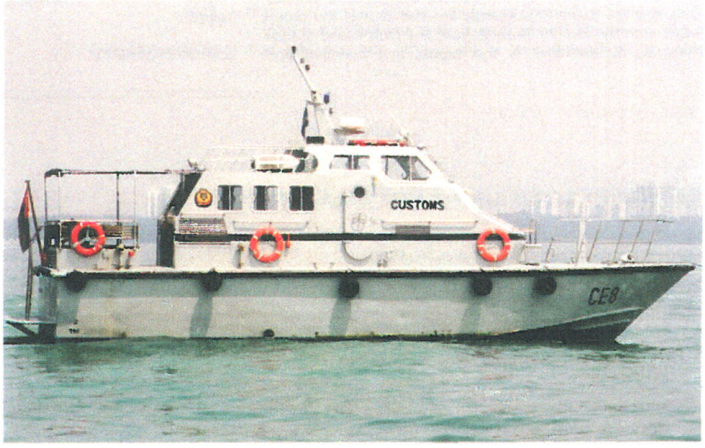


RHIB *8/2000, David Boey* / 0105607

CUSTOMS

Notes: Customs Craft include CE 1-4 and CE 5-8, the latter being sisters to PT 1 Police Craft.



CE 8 *10/2002, Mick Prendergast* / 0533877

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Slovenia
SLOVENSKI MORNARJI

Country Overview

Formerly a constituent republic of Yugoslavia, the Republic of Slovenia proclaimed its independence in 1991. Situated in south-eastern Europe, on the Balkan Peninsula, it is bordered to the north by Austria and Hungary, to the south by Croatia and to the west by Italy. With an area of 7,820 square miles, it has a short 17 n mile coastline with the Adriatic Sea on which the port of Koper is located. The capital and largest city is Ljubljana. Territorial waters (12 n miles) are claimed.

Headquarters Appointments

Chief of General Staff:
Brigadier Ladislav Lipič
Chief of Naval Section, General Staff:
Lieutenant Commander Ivan Žnidar
Chief of Coastal Defence Brigade:
Lieutenant Commander Boris Geršak
Chief of Navy Battalion:
Lieutenant Commander Edi Jeran

General

Navy formed in January 1993.

Personnel

2004: 60

Bases

Ankaran

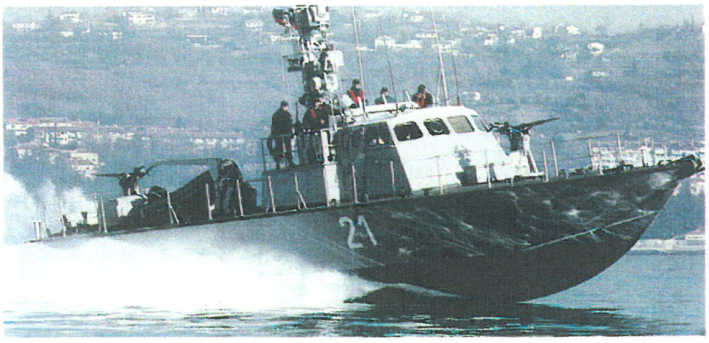
PATROL FORCES

1 SUPER DVORA Mk II (PBF)

Name	*No*	*Builders*	*Commissioned*
ANKARAN	HPL 21	IAI Ramta	Aug 1996

Displacement, tons: 58 full load
Dimensions, feet (metres): 82 × 18.4 × 3.6 *(25 × 5.6 × 1.1)*
Main machinery: 2 MTU 12V 396 TE94 diesels; 4,570 hp(m) *(3.36 MW)*; 2 ASD 15 surface drives
Speed, knots: 45. **Range, miles:** 700 at 30 kt
Complement: 10 (2 officers)
Guns: 2 Oerlikon 20 mm; 2—7.62 mm MGs.
Weapons control: Elop MSIS optronic director.
Radars: Surface search: Raytheon; I-band.

Comment: First one delivered in August 1996 at Isola base. Plans for a second craft have been cancelled.
VERIFIED



ANKARAN *6/1999, Slovenian Navy* / 0080597

POLICE

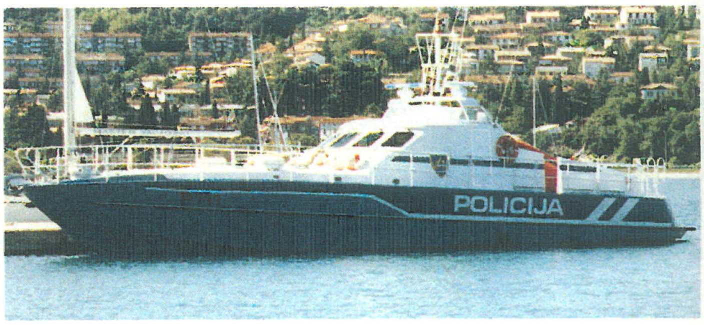
Notes: In addition there is a 40 kt cabin cruiser *Sinji Galeb* (P 101) and two RIBs.

1 HARBOUR PATROL CRAFT (PBF)

Name	*No*	*Builders*	*Commissioned*
LADSE	P 111	Aviotechnica	21 June 1995

Displacement, tons: 44 full load
Dimensions, feet (metres): 65.3 × 16.4 × 3 *(19.9 × 5 × 0.9)*
Main machinery: 2 MTU 8V 396 TE84 diesels; 2,400 hp(m) *(1.76 MW)*; 2 shafts
Speed, knots: 40. **Range, miles:** 270 at 38 kt
Complement: 10
Guns: 1—7.62 mm MG.
Radars: Surface search: I-band.

Comment: Acquired from Italy in 1995.
VERIFIED



LADSE *10/1997* / 0080598

Solomon Islands

Country Overview

Formerly a British protectorate, the Solomon Islands gained independence in 1978. Its head of state is the British sovereign, who is represented by a Governor-General. Situated in the southwest Pacific Ocean, east of New Guinea, the country comprises more than 35 islands and numerous atolls which extend some 650 n miles from east to west and includes most of the Solomon Islands group. The six main islands are: Guadalcanal, Malaita, New Georgia, San Cristobal (now Makira), Santa Isabel and Choiseul. Vella Lavella, Ontong Java, Rennell, Bellona and the Santa Cruz islands are also part of the group, together with the Florida, Russell, Reef and Duff island groups. Honiara, on Guadalcanal, is the capital and principal port. An archipelagic state, territorial seas (12 n miles) are claimed. An Exclusive Economic Zone (EEZ) (200 n miles) is also claimed but limits have not been fully defined by boundary agreements. Patrol boats are operated by the National Surveillance and Reconnaissance Force (NSRF).

Headquarters Appointments

Director of Maritime forces:
Chief Superintendent Eddie Tokuru

Bases

Honiara (HQ NSRF)

Personnel

2004: 60 (14 officers)

Prefix to Ships' Names

RSIPV

DELETIONS

2000	*Tulagi*

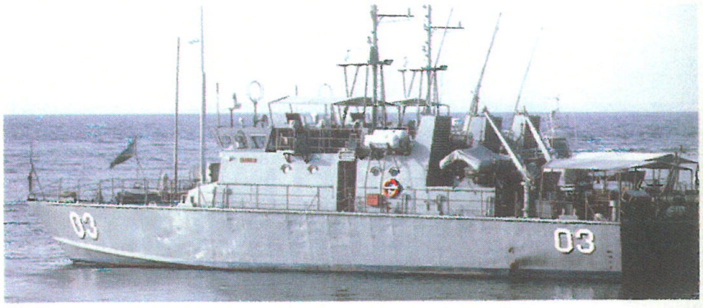
POLICE

2 PACIFIC CLASS (LARGE PATROL CRAFT) (PB)

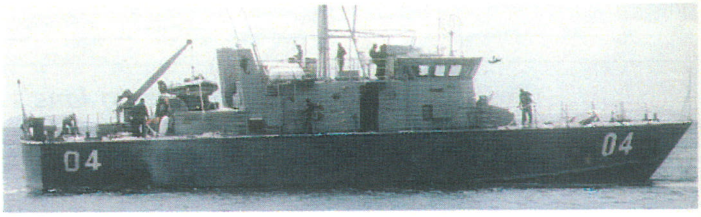
Name	*No*	*Builders*	*Commissioned*
LATA	03	Australian Shipbuilding Industries	3 Sep 1988
AUKI	04	Australian Shipbuilding Industries	2 Nov 1991

Displacement, tons: 162 full load
Dimensions, feet (metres): 103.3 × 26.6 × 7.5 *(31.5 × 8.1 × 2.3)*
Main machinery: 2 Caterpillar 3516TA diesels; 4,400 hp *(3.28 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 2,230 at 12 kt
Complement: 14 (1 officer)
Guns: 3—12.7 mm MGs.
Radars: Surface search: Furuno 8100-D; I-band.

Comment: Built under the Australian Defence Co-operation Programme. Training, operational and technical assistance provided by the Royal Australian Navy. Aluminium construction. Nominal endurance of 10 days. The Australian government has extended the Pacific Patrol Boat programme but, following suspension of most of support of the Solomon Islands' craft in 2001, an overdue half-life refit was not completed for *Auki* until 2002. Life-extension refits for *Lata* and *Auki* are due in 2005 and 2007 respectively subject to Australian government decisions.
UPDATED



LATA *3/2002, Chris Sattler* / 0533300



AUKI
10/2002, Chris Sattler / 0526834

South Africa

Country Overview

The Republic of South Africa is bordered to the north by Namibia, Botswana, Zimbabwe, Mozambique and Swaziland. With an area of 472,731 square miles, it has a 1,512 n mile coastline with the south Atlantic and Indian Oceans. South Africa also has sovereignty over the Prince Edward Islands which lie some 950 n miles south-east of Port Elizabeth. The independent country of Lesotho forms an enclave in the eastern part of the country. The administrative capital of South Africa is Pretoria and the judicial capital is Bloemfontein. Cape Town is the legislative capital, largest city and a prominent port. There are further ports at Mossel Bay, Port Elizabeth, East London, Durban, Saldanha, and Richards Bay. Territorial seas (12 n miles) are claimed. It also claims a 200 n mile EEZ but its limits have not been fully defined.

Headquarters Appointments

Chief of the Navy:
Vice Admiral J F Retief
Chief of Naval Staff:
Rear Admiral J Mudimu
Flag Officer Fleet:
Rear Admiral E M Green

Diplomatic Representation

Naval Attaché in Washington:
Captain D J Christian
Defence and Naval Attaché in Paris:
Captain L O Reeders
Armed Forces Attaché in Buenos Aires:
Captain L Van Dyk
Defence Attaché in Berlin:
Captain R R Goveia

Personnel

2004:

(a) 4,728 naval
(b) 2,266 (Public Service Act Personnel)

Prefix to Ships' Names

SAS (South African Ship)

Bases

Simon's Town (main); Durban (naval station).
Saldanha Bay (ratings' training), Gordon's Bay (officer training).

DELETIONS

Submarines

2003	*Umkhonto, Assegaai*

Patrol Forces

2000	*Shaka, Job Maseko*
2001	*Rene Sethren*

Mine Warfare Forces

2001	*Walvisbaai, East London*

Auxiliaries

2003	*Fleur*, 6 'Delta' class

SUBMARINES

0 + 3 209 CLASS (TYPE 1400Mod (Sa)) (SSK)

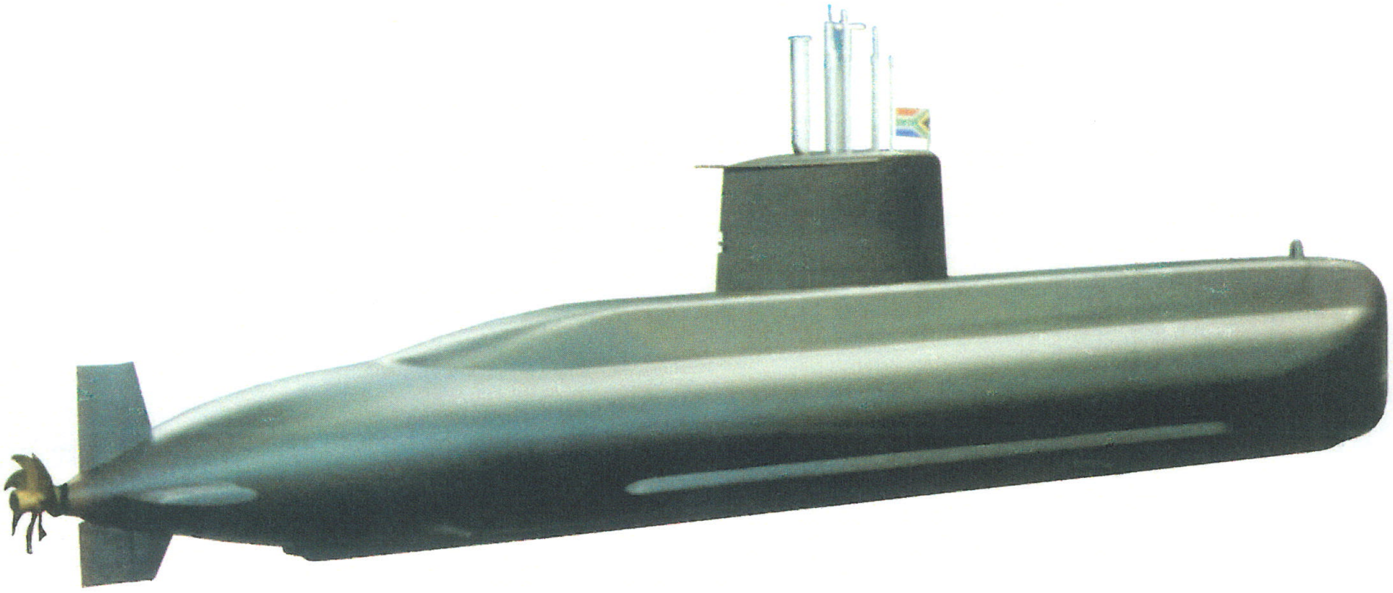
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
–	–	Howaldswerke, Kiel	2001	2004	Sep 2005
–	–	Thyssen Nordseewerke, Emden	2002	2005	Sep 2006
–	–	Thyssen Nordseewerke, Emden	2003	2006	Sep 2007

Displacement, tons: 1,454 surfaced; 1,594 dived
Dimensions, feet (metres): 201.5 × 24.7 × 18.8 *(62 × 7.6 × 5.8)*
Main machinery: Diesel electric: 4 MTU 12V 396 diesels; 3,800 hp(m) *(2.8 MW)*; 4 alternators; 1 Siemens motor; 5,032 hp(m) *(3.7 MW)*; 1 shaft
Speed, knots: 10 surfaced; 21.5 dived
Complement: 30

Torpedoes: 8—21 in *(533 mm)* bow tubes. 14 torpedoes.
Countermeasures: ESM: Grintek Avitronics; intercept.
Weapons control: STN Atlas ISUS 90 TFCS.
Radars: Surface search: I-band.
Sonars: STN Atlas CSU-90; hull mounted and flank arrays.

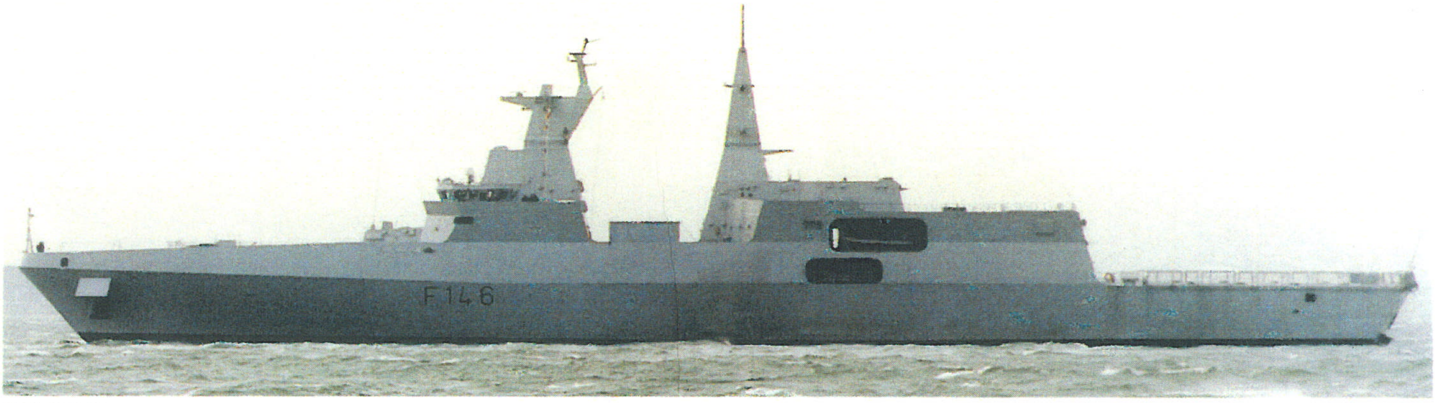
Programmes: Being acquired from the German Submarine Consortium. Final approval given on 15 September 1999. Contract signed on 7 July 2000. The first boat is being built by HDW for delivery in September 2005. The second and third boats are being built by TNSW and will follow at 12 month intervals.
Structure: Diving depth 250 m *(820 ft)*. Zeiss non-hull penetrating optronic mast.

UPDATED



TYPE 209 (model) ***6/2001, Michael Nitz*** / 0101868

FRIGATES



ISANDLWANA ***2/2004**** / 0576440

0 + 4 VALOUR CLASS (MEKO A-200 TYPE) (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
AMATOLA	F 145	Blohm + Voss, Hamburg	2 Aug 2001	6 June 2002	Oct 2005
ISANDLWANA	F 146	Howaldswerke, Kiel	26 Oct 2001	5 Dec 2002	Dec 2005
SPIOENKOP	F 147	Blohm + Voss, Hamburg	28 Feb 2002	2 Aug 2003	Mar 2006
MENDI	F 148	Howaldswerke, Kiel	28 June 2002	15 June 2004	May 2006

Displacement, tons: 3,590 full load
Dimensions, feet (metres): 397 × 53.8 × 20.3 *(121 × 16.4 × 6.2)*
Main machinery: CODAG; 1 GE LM 2500 gas turbine 26,820 hp (m) *(20 MW)*; 2 MTU 16V 1163 TB93 diesels 16,102 hp(m) *(11.84 MW)*; 2 shafts; LIPS cp props; 1 LIPS LJ210E waterjet (centreline)
Speed, knots: 28. **Range, miles:** 7,700 at 15 kt
Complement: 92 plus 8 aircrew plus 20 spare

Missiles: SSM: 8 Exocet MM 40 Block 2 ❶.
SAM: Denel Umkhonto 16 cell VLS ❷.
Guns: 1 Otobreda 76 mm/62 compact ❸.
2 LIW DPG 35 mm (twin) ❹. 2 Oerlikon 20 mm Mk 1.
Torpedoes: 4—324 mm tubes (2 twin) ❺.
Countermeasures: Decoys: 2 Super Barricade chaff launchers ❻.
ESM/ECM: intercept and jammer.
Combat data systems: Thomson-CSF.
Weapons control: 2 optronic trackers.
Radars: Air/surface search: Thales MRR ❼ 3D; G-band.
Fire control: 2 sets ❽; I/J-band.
Navigation/Helicopter control: 2 sets ❾; I-band.
Sonars: Thomson Marconi Kingklip; hull mounted, active search; medium frequency.

Helicopters: 1 Super Lynx ❿ in due course.

Programmes: Contract for four ships, with option for one further, signed on 3 December 1999 with ESACC which includes Blohm + Voss, HDW, TRT, African Defence Systems and Thomson-CSF. Contract effective 28 April 2000. *Amatola* arrived at Simon's Town on 4 November 2003 for weapon systems integration by African Defence Systems. Handover to the SAN has therefore been delayed until 2005.
Operational: Westland Super Lynx helicopters selected, but not ordered at the same time as the ships.

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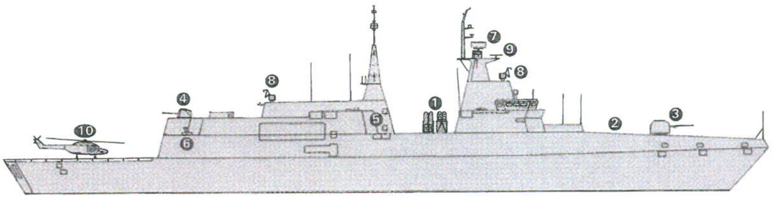
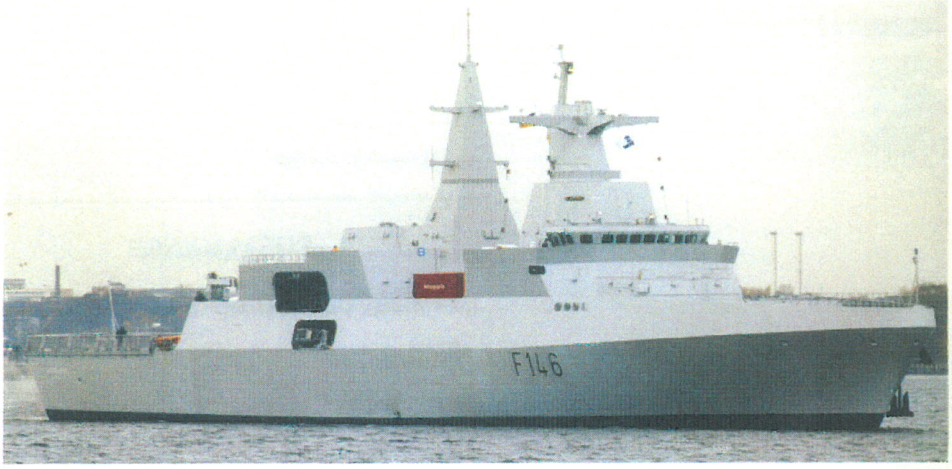
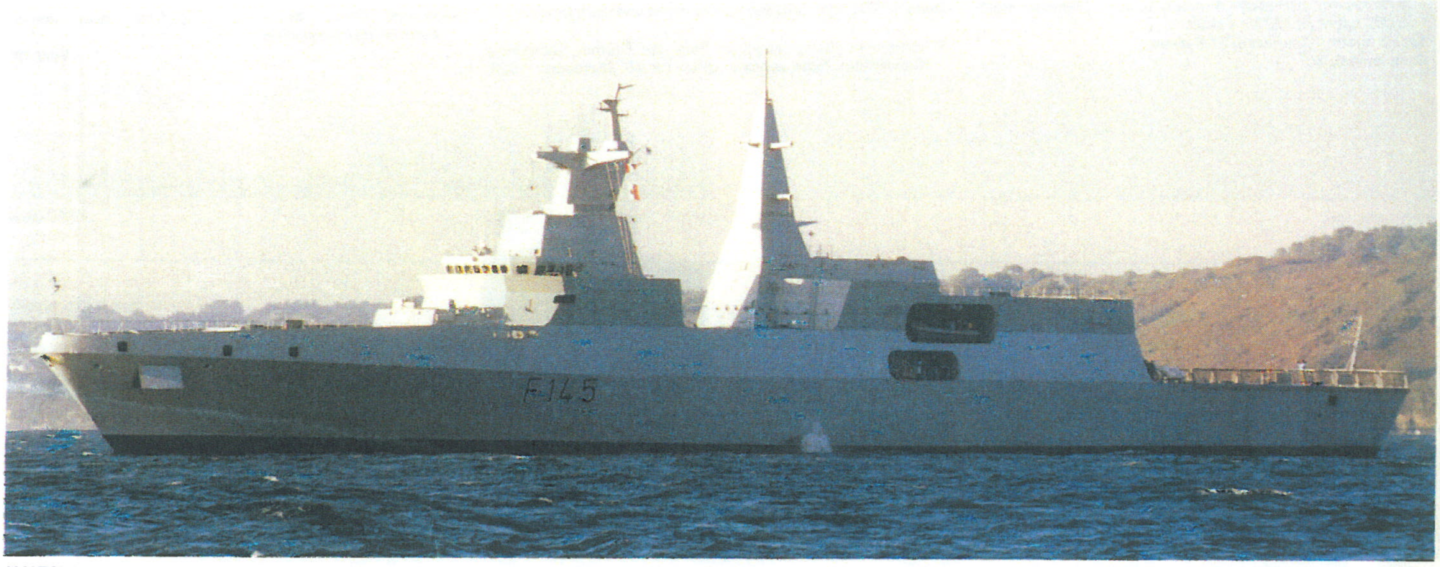


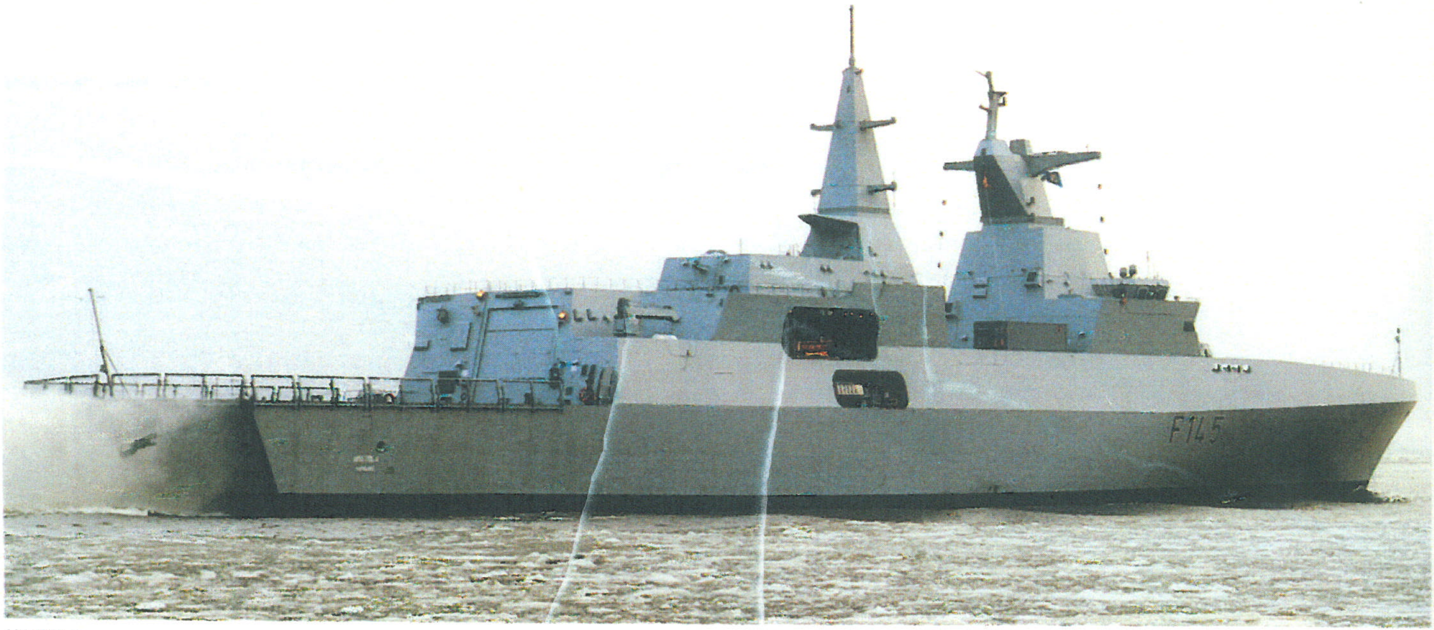
MEKO A-200 *(Scale 1 : 1,200), Ian Sturton* / 0526843



ISANDLWANA *11/2003*, Harald Carstens* / 0567896



AMATOLA *10/2003*, B Prézelin* / 0567895



AMATOLA *11/2002*, Harald Carstens* / 0568863

PATROL FORCES

5 WARRIOR (EX-MINISTER) CLASS
(FAST ATTACK CRAFT—MISSILE) (PGG)

Name	*No*	*Builders*	*Commissioned*
ADAM KOK (ex-*Frederic Creswell*)	P 1563	Haifa Shipyard	6 Apr 1978
ISAAC DYOBHA (ex-*Frans Erasmus*)	P 1565	Sandock Austral, Durban	27 July 1979
GALESHEWE (ex-*Hendrik Mentz*)	P 1567	Sandock Austral, Durban	11 Feb 1983
JOB MASEKO (ex-*Kobie Coetsee*)	P 1568	Sandock Austral, Durban	11 Feb 1983
MAKHANDA (ex-*Magnus Malan*)	P 1569	Sandock Austral, Durban	4 July 1986

Displacement, tons: 430 full load
Dimensions, feet (metres): 204 × 25 × 8 *(62.2 × 7.8 × 2.4)*
Main machinery: 4 Maybach MTU 16V 965 TB91 diesels; 15,000 hp(m) *(11 MW)* sustained; 4 shafts
Speed, knots: 32. **Range, miles:** 1,500 at 30 kt; 3,600+ at economical speed
Complement: 52 (7 officers)

Missiles: SSM: 6 Skerpioen; active radar or optical guidance; semi-active radar homing to 36 km *(19.4 n miles)* at 0.7 Mach; warhead 75 kg. Another pair may be mounted. Skerpioen is an Israeli Gabriel II built under licence in South Africa.
Guns: 2 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg; 500 rounds per gun.
2 LIW Vektor 35 mm (twin); 550 rds/min; may replace one 76 mm gun in one craft for trials.
2 LIW Mk 1 20 mm. 2—12.7 mm MGs.
Countermeasures: Decoys: 4 ACDS launchers for chaff.
ESM: Delcon (ADS/Sysdel) EW system.
ECM: Elta Rattler; jammer.
Combat data systems: ADS Diamant (after upgrade). Mini action data automation with Link.
Radars: Air/surface search: Elta EL/M 2208; E/F-band.
Fire control: Selenia RTN 10X; I/J-band.

Programmes: Contract signed with Israel in late 1974 for this class, similar to 'Saar 4' class. Three built in Haifa and reached South Africa in July 1978. The ninth craft launched late March 1986. Three more improved vessels of this class were ordered but subsequently cancelled. The last of the class was finally christened in March 1992. Pennant numbers restored to the ships side and stern in 1994.
Modernisation: Ship life extension programme included a new communications refit, improvements to EW sensors, a third-generation target designation assembly, a computer-assisted action information system served by datalinks, improvements to fire control, a complete overhaul of the Skerpioen missiles, and a new engine room monitoring system. P 1563 completed upgrade in mid-1996. P 1565 in April 1999, P 1567 in March 2000 and P 1569 in mid-2000.
Operational: All are based at Simon's Town. P 1568 is expected to be decommissioned in 2004.

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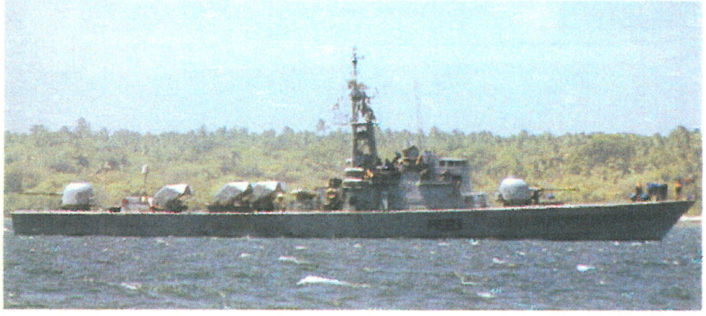

ADAM KOK *4/2002, Ships of the World* / 0533265

3 T CRAFT CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
TOBIE	P 1552	T Craft International, Cape Town	18 July 2003
TERN	P 1553	T Craft International, Cape Town	18 July 2003
TEKWANE	P 1554	T Craft International, Cape Town	22 July 2003

Displacement, tons: 36 full load
Dimensions, feet (metres): 72.2 × 23 × 3 *(22 × 7 × 0.9)*
Main machinery: 2 ADE 444 TI 12V diesels; 2,000 hp *(1.5 MW)*; 2 Hamilton waterjets
Speed, knots: 32. **Range, miles:** 530 at 22 kt
Complement: 16 (1 officer)
Guns: 1—12.7 mm MG.
Weapons control: Hesis optical director.
Radars: Surface search: Racal Decca; I-band.

Comment: Twin hulled catamarans of GRP sandwich construction. Capable of carrying up to 15 people. Originally ordered in mid-1991 but not fully commissioned until 2003. Carries an RIB in the stern well. Three of this type built for Israel in 1997. Two based at Simon's Town and one at Durban.

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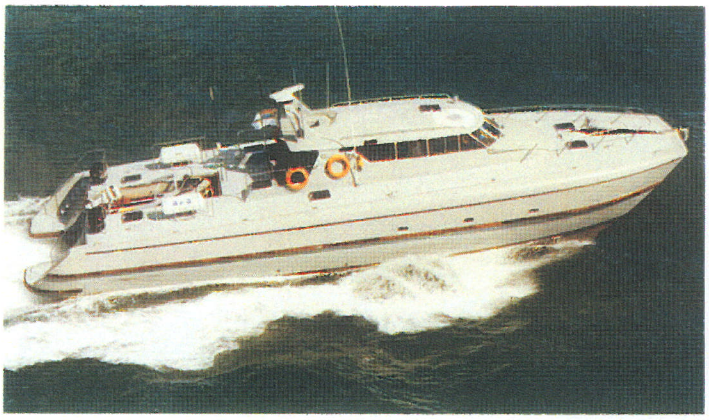

TOBIE *6/2001, South African Navy* / 0114554

26 NAMACURRA CLASS (INSHORE PATROL CRAFT) (PB)

Y 1502-1509 **Y 1511-1519** **Y 1521-1529**

Displacement, tons: 5 full load
Dimensions, feet (metres): 29.5 × 9 × 2.8 *(9 × 2.7 × 0.8)*
Main machinery: 2 Yamaha outboards; 380 hp(m) *(279 kW)*
Speed, knots: 32. **Range, miles:** 180 at 20 kt
Complement: 4
Guns: 1—12.7 mm MG. 2—7.62 mm MGs.
Depth charges: 1 rack.
Radars: Surface search: Furuno; I-band.

Comment: Built in South Africa in 1980-81. Can be transported by road. One transferred to Malawi in October 1988 and one has sunk at sea. Y 1501 and Y 1510 donated to Namibia on 29 November 2002. Three deployed by air to Burundi in mid-2003 as part of peacekeeping force.

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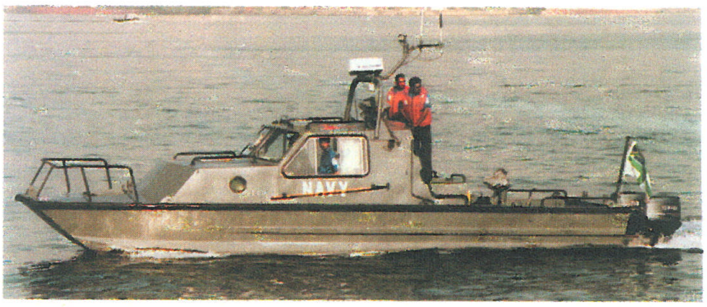


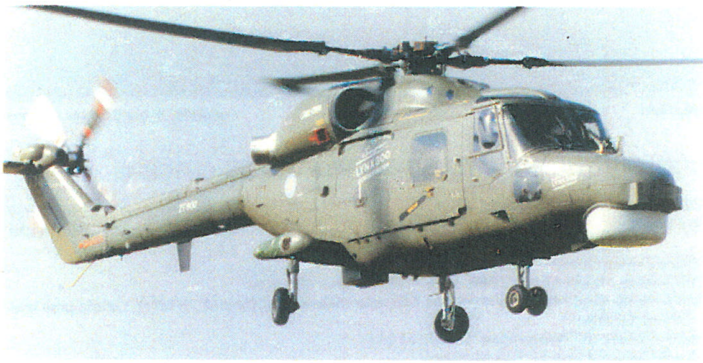
NAMACURRA *8/2001, van Ginderen Collection* / 0132783

NAMACURRA *8/2001, van Ginderen Collection* / 0132784

SHIPBORNE AIRCRAFT

Numbers/Type: 4 Agusta-Westland Super Lynx 300.
Operational speed: 120 kt *(222 km/h)*.
Service ceiling: 10,000 ft *(3,048 m)*.
Range: 320 n miles *(593 km)*.
Role/Weapon systems: Ordered on 14 August 2003 for delivery in 2007. Surveillance. Sensors: Telephonics APS-143 B(V)3 radar; ESM: Sea Raven 118; Cumulus Leo Mk II FLIR. Weapons: Unarmed (torpedoes and ASM may be fitted in future upgrades).

NEW ENTRY



SUPER LYNX *6/2003** / 0095707

Numbers/Type: 8 Aerospatiale SA 330E/H/J Oryx.
Operational speed: 139 kt *(258 km/h)*.
Service ceiling: 15,750 ft *(4,800 m)*.
Range: 297 n miles *(550 km)*.
Role/Weapon systems: Support helicopter; allocated by SAAF for naval duties and can be embarked in *Drakensberg, Outeniqua* and *Agulhas*. Sensors: Doppler navigation with search radar. Weapons: Unarmed but can mount Armscor 30 mm Rattler.

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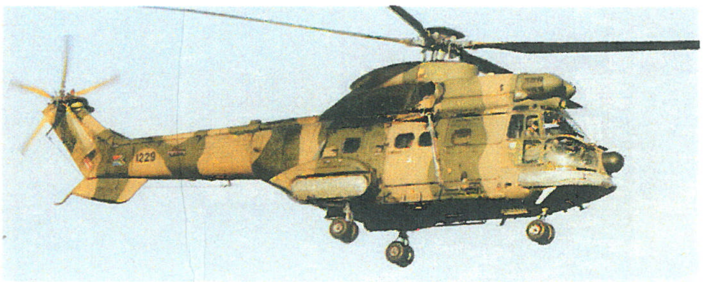

ORYX *4/2000, Michael Nitz* / 0105612

LAND-BASED MARITIME AIRCRAFT

Notes: There are also some utility Alouette helicopters.

Numbers/Type: 5 Douglas Turbodaks.
Operational speed: 161 kt *(298 km/h).*
Service ceiling: 24,000 ft *(7,315 m).*
Range: 1,390 n miles *(2,575 km).*
Role/Weapon systems: A number of Dakotas has been converted for MR/SAR and other tasks. Additional fuel tanks extend the range to 2,620 n miles *(4,800 km).* Sensors: Elta M-2022 search radar and FLIR; Sysdel ESM; sonobuoy acoustic processor. Weapons: Unarmed.

UPDATED

SURVEY AND RESEARCH SHIPS

Notes: (1) As well as *S A Agulhas,* the Department of Environmental Affairs has three research vessels: *Africana* of 2,471 grt, *Algoa* of 760 grt and *Sardinops* of 255 grt. These ships are operated by Smit Pentow Marine. There are also three fishery protection vessels: *Patella, Pelargus* and *Jasus.* A contract was signed in 2003 with Damen Shipyards Gorinchem in 2003 for the construction of one Offshore and three Inshore Fishery and Environmental Protection vessels. The design of the Offshore Patrol vessel is based on the Dutch Fishery Patrol vessel *Barend Biesheuvel* but the main dimensions are larger. The hull and superstructure are to be built at Damen Shipyards Okean (Ukraine) while outfitting will take place at the Royal Schelde Yard, Vlissingen. Delivery is scheduled to take place in December 2004. The design of the Inshore Patrol vessels is based on the Damen Stan Patrol 4207 in service with UK Customs. These vessels are to be built by Farocean Marine, Cape Town and deliveries are scheduled in December 2004, February 2005 and May 2005.
(2) Two survey launches, *Malgas* and *Seemeeu* are carried by *Protea*.
(3) A 50 m trawler, *Eagle Star,* is used for training.

1 HECLA CLASS (AGSH)

Name	*No*	*Builders*	*Commissioned*
PROTEA	A 324	Yarrow (Shipbuilders) Ltd	23 May 1972

Displacement, tons: 2,733 full load
Dimensions, feet (metres): 260.1 × 49.1 × 15.6 *(79.3 × 15 × 4.7)*
Main machinery: Diesel-electric; 3 MTU diesels; 3,840 hp *(2.68 MW)* sustained; 3 generators; 1 motor; 2,000 hp *(1.49 MW)*; 1 shaft; cp prop; bow thruster
Speed, knots: 14. **Range, miles:** 12,000 at 11 kt
Complement: 124 (10 officers)
Radars: Navigation: Racal Decca; I-band.
Helicopters: 1 Alouette III.

Comment: Laid down 20 July 1970. Launched 14 July 1971. Equipped for hydrographic survey with limited facilities for the collection of oceanographical data and for this purpose fitted with special communications equipment, Polaris survey system, survey launches *Maleas* and *Seemeeu* and facilities for helicopter operations. Hull strengthened for navigation in ice and fitted with a passive roll stabilisation system. New engines and full overhaul in 1995-96. Carries EGNG sidescan sonar and two survey boats. Fitted for two 20 mm guns.

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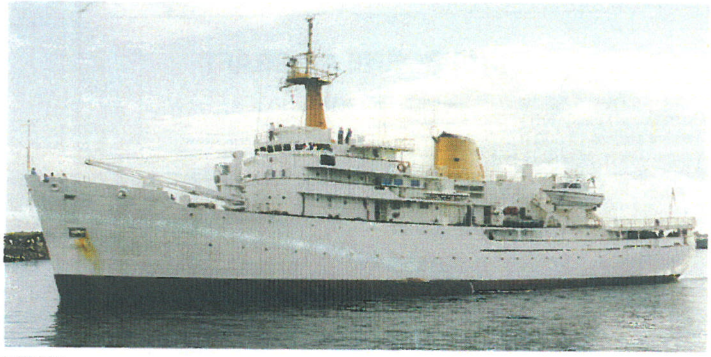

PROTEA *4/2002, Robert Pabst* / 0533278

1 ANTARCTIC SURVEY AND SUPPLY VESSEL (AGOBH)

Name	*Builders*	*Launched*	*Commissioned*
S A AGULHAS	Mitsubishi, Shimonoseki	30 Sep 1977	31 Jan 1978

Measurement, tons: 5,353 gross
Dimensions, feet (metres): 358.3 × 59 × 19 *(109.2 × 18 × 5.8)*
Main machinery: 2 Mirrlees-Blackstone K6 major diesels; 6,600 hp *(4.49 MW)*; 1 shaft; bow and stern thrusters
Speed, knots: 14. **Range, miles:** 8,200 at 14 kt
Complement: 40 plus 92 spare berths
Radars: Navigation: Racal Decca; I-band.
Helicopters: 2 SA 330J Puma.

Comment: Red hull and white superstructure. A Department of Environmental Affairs vessel, civilian manned and operated by Smit Pentow Marine. Major refit March to October 1992; 25 ton crane moved forward, transverse thrusters and roll damping fitted, improved navigation and communications equipment. A hinged hatch has been fitted at the stern to recover towed equipment.

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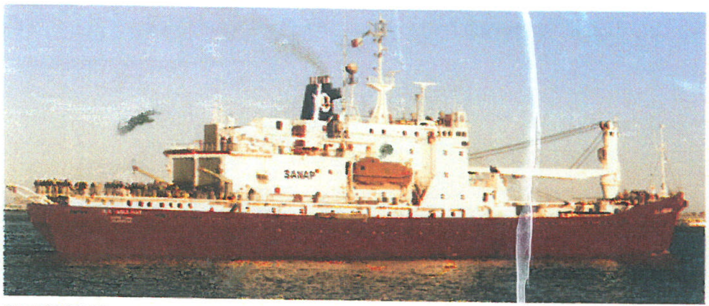

S A AGULHAS *8/2001, Robert Pabst* / 0121399

MINE WARFARE FORCES

Notes: It is planned to introduce a new class of MCMV in about 2015.

2 CITY (LINDAU) CLASS (TYPE 351, TROIKA) (MINESWEEPERS—COASTAL) (MSCD)

Name	*No*	*Builders*	*Commissioned*
KAPA (ex-*Düren*)	M1223 (ex-M1079)	Burmester, Bremen	22 Apr 1959
TEKWINI (ex-*Wolfsburg)*	M1225 (ex-M1082)	Burmester, Bremen	8 Oct 1959

Displacement, tons: 465 full load
Dimensions, feet (metres): 154.5 × 27.2 × 9.2 *(47.1 × 8.3 × 2.8)*
Main machinery: 2 MTU MD 16V 538 TB90 diesels; 5,000 hp(m) *(3.68 MW)* sustained; 2 shafts
Speed, knots: 16.5
Complement: 44 (4 officers)

Guns: 1 Bofors 40 mm/70; 330 rds/min to 12 km *(6.5 n miles)*; weight of shell 0.96 kg.
2—12.7 mm MGs.
2—7.62 mm MGs (fitted for).
Radars: Navigation: Kelvin Hughes 14/9 or Atlas Electronik TRS N, or Raytheon SPS-64; I-band.
Sonars: Atlas Electronik DSQS-11; minehunting; high frequency.

Programmes: The contract for the acquisition of six German Type 351 minesweepers was finalised on 10 November 2000. After shipment to South Africa in 2001, *Kapa* (ex-*Düren*) and *Tekwini* (ex-*Wolfsburg*) were recommissioned on 5 September 2001 while *Tshwane* (ex-*Schleswig*) and *Mangaung* (ex-*Paderborn*) were placed in reserve. *Konstanz* (M1081) and *Ulm* (M1083) will be used for spares. The ships are based at Simon's Town and are an interim replacement for the four 'Ton' class minesweepers.
Modernisation: Converted as guidance ships for Troika between 1981 and 1983. Each can guide three of these unmanned minesweeping vehicles as well as maintaining their moored-mine sweeping capabilities.
Structure: The hull is of wooden construction. Laminated with plastic glue. The engines are of non-magnetic materials.

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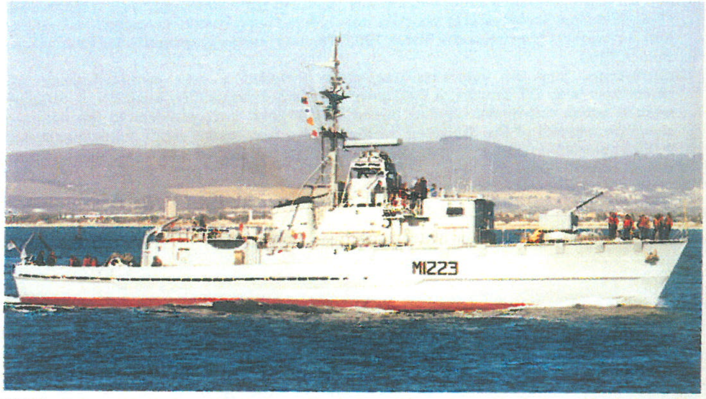

KAPA *11/2002*, Robert Pabst* / 0568862

4 RIVER CLASS (COASTAL MINEHUNTERS) (MHC)

Name	*No*	*Builders*	*Commissioned*
UMKOMAAS (ex-*Navors I*)	M 1499	Abeking & Rasmussen/ Sandock Austral	13 Jan 1981
UMGENI (ex-*Navors II*)	M 1213	Abeking & Rasmussen/ Sandock Austral	1 Mar 1981
UMZIMKULU (ex-*Navors III*)	M 1142	Sandock Austral	30 Oct 1981
UMHLOTI (ex-*Navors IV*)	M 1212	Sandock Austral	15 Dec 1981

Displacement, tons: 380 full load
Dimensions, feet (metres): 157.5 × 27.9 × 8.2 *(48 × 8.5 × 2.5)*
Main machinery: 2 MTU 12V 652 TB81 diesels; 4,515 hp(m) *(3.32 MW)*; 2 Voith Schneider props
Speed, knots: 16. **Range, miles:** 2,000 at 13 kt
Complement: 40 (7 officers)
Guns: 1 Oerlikon 20 mm GAM-BO1. 2—12.7 mm MGs. 2—7.62 mm MGs.
Countermeasures: MCM: 2 PAP 104 remote-controlled submersibles.
Radars: Navigation: Decca; I-band.
Sonars: Klein VDS; side scan; high frequency.

Comment: Ordered in 1978 as Research Vessels to be operated by the Navy for the Department of Transport. The lead ship *Navors I* was shipped to Durban from Germany in the heavy lift ship *Uhenfels* in June 1980 for fitting out, shortly followed by the second. The last pair were built in Durban. The vessels were painted blue with white upperworks and formed the First Research Squadron. Painted grey and renamed in 1982 but continued to fly the national flag and not the naval ensign. The prefix RV was only changed to SAS on 3 February 1988 when they were formally accepted as naval ships. Minehunting capability could be enhanced by substituting the diving container on the after deck with lightweight mechanical and acoustic sweeping gear. Carry an RIB and a decompression chamber. The plan is to give them a second generation minehunting system. M1499 refitted in 2002 followed by M1213 in 2003.

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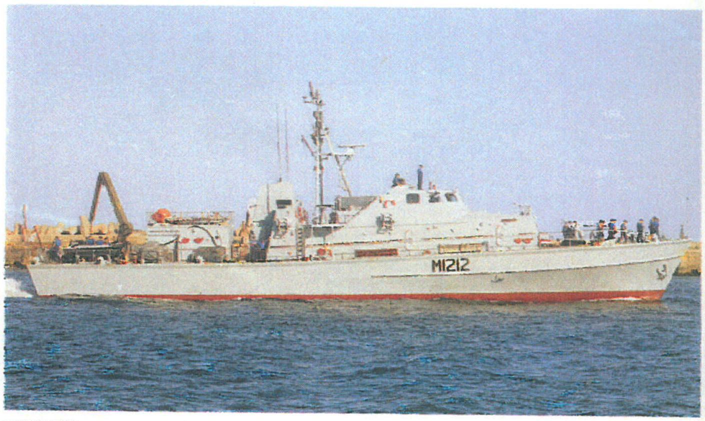

UMHLOTI *4/2000, van Ginderen Collection* / 0105615

AUXILIARIES

1 FLEET REPLENISHMENT SHIP (AORH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
DRAKENSBERG	A 301	Sandock Austral, Durban	24 Apr 1986	11 Nov 1987

Displacement, tons: 6,000 light; 12,500 full load
Dimensions, feet (metres): 482.3 × 64 × 25.9 *(147 × 19.5 × 7.9)*
Main machinery: 2 diesels; 16,320 hp(m) *(12 MW)*; 1 shaft; cp prop; bow thruster
Speed, knots: 20+. **Range, miles:** 8,000 at 15 kt
Complement: 96 (10 officers) plus 10 aircrew plus 22 spare
Cargo capacity: 5,500 tons fuel; 750 tons ammunition and dry stores; 2 Delta 80 LCUs
Guns: 4 Oerlikon 20 mm GAM-BO1. 8—12.7 mm MGs.
Helicopters: 2 SA 330H/J Oryx.

Comment: The largest ship built in South Africa and the first naval vessel to be completely designed in that country. In addition to her replenishment role she is employed on SAR, patrol and surveillance with a considerable potential for disaster relief. As well as LCUs carries two diving support boats and two RIBs. Two abeam positions and astern fuelling, jackstay and vertrep. Two helicopter landing spots, one forward and one astern. Main secondary role is the transport of consumables, but can also be used to support small craft and transport a limited number of troops.

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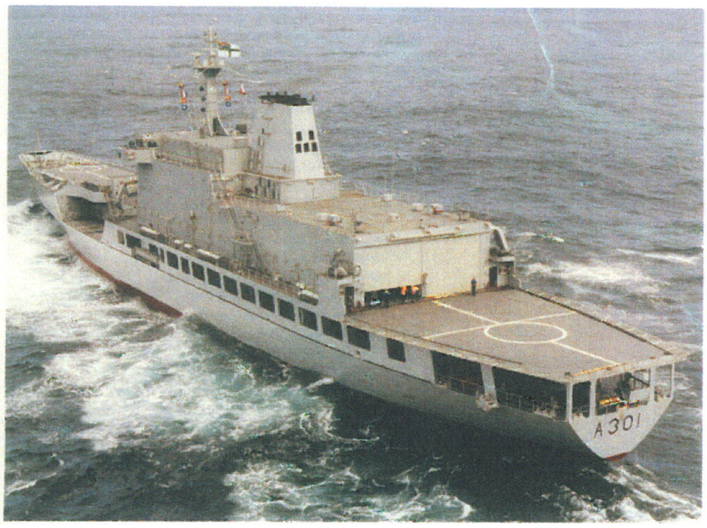

DRAKENSBERG *6/2003*, South African Navy* / 0568889

DRAKENSBERG *6/2002, John Kinross* / 0533266

1 COMBAT SUPPORT SHIP (AFSH)

Name	*No*	*Builders*	*Commissioned*
OUTENIQUA (ex-*Juvent*, ex-*Aleksander Sledzyuk*)	A 302	Kherson Shipyard, Ukraine	3 Apr 1992

Displacement, tons: 21,025 full load
Dimensions, feet (metres): 545.6 × 74.1 × 29.5 *(166.3 × 22.6 × 9)*
Main machinery: 1 MAN Burmeister & Wain 8DKRN-60/195 diesel; 17,512 hp(m) *(12.87 MW)*; 1 shaft; cp prop
Speed, knots: 17. **Range, miles:** 8,000 at 15 kt
Complement: 126 (17 officers) including aircrew
Military lift: 4 Delta 80 LCU; 10 vehicles; 600 troops
Guns: 2 Oerlikon 20 mm GAM-BO1. 6—12.7 mm MGs (fitted for).
Radars: Navigation: 2 Racal; I-band.
Helicopters: 2 SA 330H/J Oryx.

Comment: Launched on 6 September 1991 as the *Aleksander Sledzyuk* and renamed *Juvent* on 4 April 1992 when ownership was transferred to a shipping company. This company operated her until 26 February 1993 when she was bought by the Navy, through Armscor and recommissioned 8 July 1993. Built as an Arctic supply vessel with an icebreaking capability of 1 m thick ice at a constant speed of 2 kt. Refit in 1994 to allow alterations to flight deck and hangars to take Oryx helicopters, and to fit light armament and RAS gear. Further work done from May to September 1996, and again from May to September 1997. Helicopter handling system installed in 1998. Refitted again in 2000 to improve logistic support capabilities and flight deck. Primary role is transport of vehicles and heavy equipment in support of operations ashore. Secondary roles include replenishment, Antarctic support, SAR and relief work.

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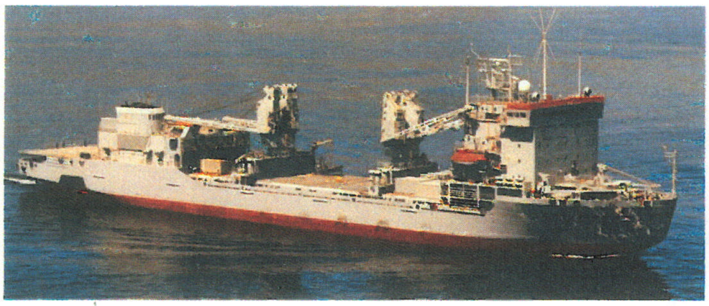


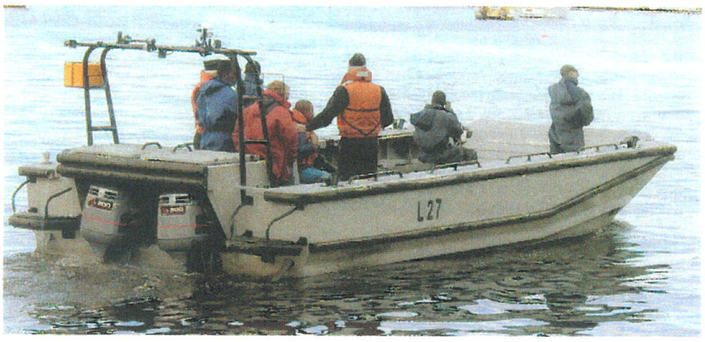
OUTENIQUA *6/2003*, South African Navy* / 0568888

6 LIMA CLASS (LCU)

Displacement, tons: 7.3 full load
Dimensions, feet (metres): 29.8 × 11.6 × 2.3 *(9.1 × 3.55 × 0.7)*
Main machinery: 2 outboards; 400 hp *(298 kW)*
Speed, knots: 38. **Range, miles:** 120 at 26 kt
Complement: 3

Comment: Built in 2003 by Stingray Marine, Cape Town. GRP construction. Capable of carrying 24 troops or 2.5 tons of cargo. Two craft can be carried in *Drakensberg* and *Outeniqua*.

NEW ENTRY



L 27 *8/2003*, Helmoed-Römer Heitman* / 0530510

TUGS

Notes: There is also a harbour tug *De Neys*.

1 COASTAL TUG (YTB)

DE MIST

Displacement, tons: 275 full load
Dimensions, feet (metres): 112.5 × 25.6 × 11.1 *(34.3 × 7.8 × 3.4)*
Main machinery: 2 Mirlees-Blackstone diesels; 2,440 hp *(1.82 MW)*; 2 Voith-Schneider props
Speed, knots: 12
Complement: 11

Comment: Completed by Dorbyl Long, Durban on 23 December 1978.

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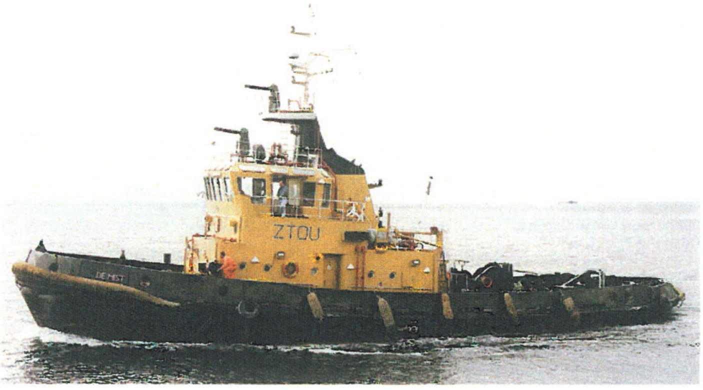

DE MIST *5/2000, Michael Nitz* / 0105618

1 COASTAL TUG (YTB)

UMALUSI (ex-*Golden Energy*)

Displacement, tons: 315 full load
Dimensions, feet (metres): 98.5 × 32.8 × 17.1 *(30 × 10 × 5.2)*
Main machinery: 2 Caterpillar V6 diesels
Speed, knots: 10
Complement: 10

Comment: Completed in 1995 by Jaya Holding Ltd. Acquired from Taikong Trading Company in January 1997.

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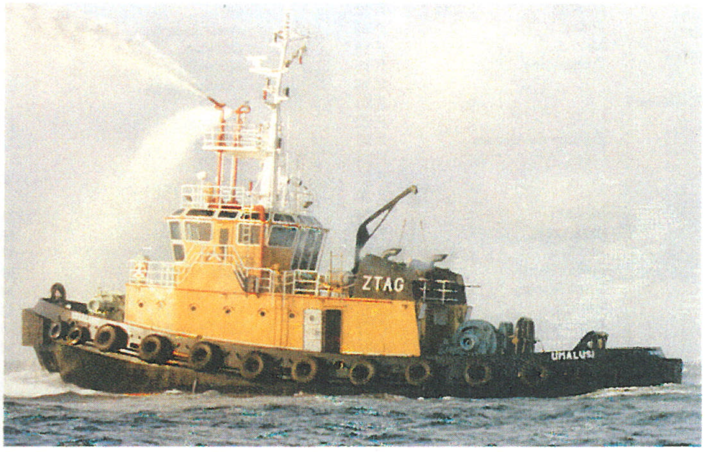


UMALUSI *5/2000, Robert Pabst* / 0105617

Spain
ARMADA ESPAÑOLA

Country Overview

The Kingdom of Spain is a constitutional monarchy that occupies the greater part of the Iberian Peninsula in southwest Europe. It is bordered to the north by France and Andorra and to the west by Portugal. It has a 2,678 n mile coastline with the Atlantic Ocean and Mediterranean Sea. With a total area of 194,897 square miles, the country comprises the mainland, the Balearic Islands in the Mediterranean and the Canary Islands in the Atlantic Ocean. There are also two small exclaves in Morocco, Ceuta and Melilla and three island groups near the Moroccan coast, Peñón de Vélez de la Gomera, the Alhucemas and the Chafarinas. The British dependency of Gibraltar is situated at the southern extremity of Spain. Madrid is the capital and largest city while Barcelona, Algeciras, Valencia and Bilbao are the principal ports. Territorial seas (12 n miles) and an EEZ (200 n miles) are claimed.

Headquarters Appointments

Chief of the Naval Staff:
Admiral Sebastián Zaragoza Soto
Second Chief of the Naval Staff:
Admiral Angel Tafalla Balduz
Chief of Fleet Support:
Admiral Juan José González-Irún Sánchez
Chief of Naval Personnel:
Admiral Rafael Lapique Dobarro

Commands

Commander-in-Chief of the Fleet:
Admiral José Antonio Balbás Otal
Commander-in-Chief, Maritime Action (Almart):
Admiral Mario Rafael Sánchez-Barriga Fernández
Commander-in-Chief, Cantabrian Zone and Ferrol Arsenal:
Admiral Ángel Manuel Tello Valero
Commander-in-Chief, Strait Zone and La Carraca Arsenal:
Vice Admiral Manuel Abal López-Valeiras
Commander-in-Chief, Canary Islands Zone:
Vice Admiral Manuel Calvo Freijomil
Marines General Commander:
Major General Juan García Lizana
Commander, Fleet Task Group (COMGRUFLOT):
Rear Admiral José María Treviño Ruiz
Commander, Northern Forces (ALFUNOR):
Rear Admiral Juan Francisco Serón Martinez
Commander, Straits Forces (ALFUEST):
Rear Admiral Juan José Ollero Marín
Commander, Mediterranean Forces (ALMED):
Rear Admiral Tomás Bolibar Piñeiro

Diplomatic Representation

Defence Attaché in Washington:
Rear Admiral Teodoro de Leste Contreras
Naval Attaché in Berlin:
Commander Javier Garzón Heydt
Naval Attaché in Brasilia:
Captain Darío Lanza Carballo
Naval Attaché in Lisbon:
Captain José Enrique Jarque Pérez
Naval Attaché in London and Dublin:
Captain Alfredo Martinez Mahamud
Naval Attaché in Paris:
Commander Ramón Barro Ordovás
Naval Attaché in Rabat:
Commander Juan Pita Bueno
Naval Attaché in Rome:
Commander Antonio Bianqui Rebagliato
Naval Attaché in Santiago, Lima and La Paz:
Captain Antonio Carrasco Gómez
Naval Attaché in Washington:
Captain Francisco Gil de Sola Costell
Naval Attaché in Oslo, Stockholm and Helsinki:
Captain Alvaro Ollero Marín

Diplomatic Representation — *continued*

Naval Attaché in Bangkok, Manila and Singapore:
Captain Ramón Díaz-Guevara Domínguez
Naval Attaché in Pretoria:
Captain Mariano Mayo Consentino
Naval Attaché in Athens:
Captain Angel Cabrera Juega

Personnel

2004: Navy: 20,612 (3,083 officers)
Marines: 5,243 (473 officers)

Bases

Naval Zones are being re-organised into a single Area. Headquarters are to be in Cartagena with subordinate commands in Ferrol, Cádiz and Las Palmas.
Ferrol: Cantabrian Zone HQ-Ferrol arsenal, support centre at La Graña, naval school at Marín, Pontevedra
Cádiz: Straits Zone HQ-La Carraca arsenal, fleet command HQ and naval air base at Rota, amphibious base at Puntales. Marines Brigade (TEAR) HQ at San Fernando, Cádiz.
Cartagena: Maritime Action, HQ-Cartagena arsenal, underwater weapons and divers school at La Algameca; support base at Mahón, Minorca and at Soller and Porto Pi, Majorca, submarine weapons schools at La Algameca and Porto Pi base, Majorca. Naval Infantry school at Cartagena.
Las Palmas: Canaries Zone HQ-Las Palmas arsenal

Naval Air Service

The Naval Air Arm Flotilla is based at Rota.

Type	*Escuadrilla*
AB 212	3
Cessna Citation II	4
Sikorsky SH-3D/G Sea King	5
Sikorsky SH-3E Sea King (AEW)	
Hughes 500M (Training)	6
EAV-8B Harrier II/Harrier Plus	9
Sikorsky SH-60B Seahawk	10

Guardia Civil del Mar

Started operations in 1992. For details, see end of section.

Prefix to Ships' Names

SPS (Spanish Ship)

Strength of the Fleet

Type	*Active*	*Building (Planned)*
Submarines—Patrol	6	4
Aircraft Carriers	1	–
Frigates	12	2
Corvettes	1	–
Offshore Patrol Vessels	12	–
Coastal Patrol Craft	22	–
Inshore Patrol Craft	3	–
LHD	–	1
LPDs	2	–
LSTs	2	–
Minesweepers	1	–
Minehunters	4	2 (2)
MCM support ship	1	–
Survey and Research Ships	7	–
Replenishment Tankers	2	(1)
Tankers	9	–
Transport Ships	5	–
Training Ships	10	–
Ocean Tugs	2	–

Fleet Deployment

(1) Fleet (under Commander-in-Chief, Fleet)
  (a) *Principe de Asturias* (based at Rota)
  (b) Escuadrillas de Escoltas:
    31st Squadron; 5 'Baleares' class (based at Ferrol)
    41st Squadron; 6 'Santa María' class (based at Rota)
    51st Squadron; 4 'Alvaro de Bazan' class (based at Ferrol)
  (c) Amphibious Forces: (2 LST and 2 LPD at Rota, small units at Puntales, Cádiz).
    Naval infantry at San Fernando.
  (d) Fuerza de Medidas contra Minas: (based at Cartagena)
    6 MSCs, 1 MCCS
  (e) Flotilla de Submarinos: (based at Cartagena)
    All submarines
  (f) Flotilla de Aeronaves: (based at Rota)

(2) Maritime Action units (under Commander-in-Chief, Maritime Action)
  (a) Cantabrian Zone:
    1 Ocean Tug, 8 Tugs, 4 Patrol Ships, 5 Large Patrol Craft, 7 Coastal Patrol Craft, 1 Logistics Support Ship, 4 Sail Training Ships, 5 Training Craft
  (b) Straits Zone:
    1 oiler, 6 Oceanographic Ships, 1 Sail Training Ship, 4 Fast Attack Craft, 1 Transport, 1 Ocean Tug, 7 Tugs, 1 Water-boat
  (c) Mediterranean Zone:
    4 Fast Attack Craft, 3 Patrol Ships, 1 Water-boat, 7 Tugs, 1 Frogman Support Ship
  (d) Canaries Zone:
    4 Patrol Ships, 1 Ocean Tug, 2 Tugs, 1 LCT
  (e) Minor auxiliaries. Identified by 'Y' pennant numbers and form Tren Naval.

DELETIONS

Submarines

2003	*Narval, Delfín*

Frigates

2004	*Cataluña*

Mine Warfare Forces

2001	*Guadalmedina, Jucar, Tajo*
2003	*Sil*
2004	*Genil, Odiel*

Amphibious Warfare Forces

2004	2 LCT

Survey and Research Ships

2003	*Pollux*
2004	*Castor*

Auxiliaries

2002	*Proserpina*
2003	*Ferrol, Guardiamarina Barrutia*
2004	*Torpedista Hernández*

PENNANT LIST

Submarines

S 62	Tonina
S 63	Marsopa
S 71	Galerna
S 72	Siroco
S 73	Mistral
S 74	Tramontana

Aircraft Carriers

R 11	Príncipe de Asturias

Frigates

F 71	Baleares
F 72	Andalucía
F 74	Asturias
F 75	Extremadura
F 81	Santa María
F 82	Victoria
F 83	Numancia
F 84	Reina Sofía
F 85	Navarra
F 86	Canarias
F 101	Alvaro de Bazán
F 102	Almirante Don Juan de Borbón
F 103	Blas de Lezo (bldg)
F 104	Mendez Nuñez (bldg)

Patrol Forces

F 33	Infanta Elena
P 11	Barceló
P 12	Laya
P 13	Javier Quiroga
P 14	Ordóñez
P 15	Acevedo
P 16	Cándido Pérez
P 21	Anaga
P 22	Tagomago
P 23	Marola
P 24	Mouro
P 25	Grosa
P 26	Medas
P 27	Izaro
P 28	Tabarca
P 29	Deva
P 30	Bergantín
P 31	Conejera
P 32	Dragonera
P 33	Espalmador
P 34	Alcanada
P 61	Chilreu
P 62	Alboran
P 63	Arnomendi
P 71	Serviola
P 72	Centinela
P 73	Vigía
P 74	Atalaya
P 75	Descubierta
P 77	Infanta Cristina
P 78	Cazadora
P 79	Vencedora
P 201	Cabo Fradera

Amphibious Forces

L 41	Hernán Cortés
L 42	Pizarro
L 51	Galicia
L 52	Castilla

Mine Warfare Forces

M 11	Diana
M 22	Ebro
M 31	Segura
M 32	Sella
M 33	Tambre
M 34	Turia
M 35	Duero (bdlg)
M 36	Tajo (bdlg)

Survey Ships

A 23	Antares
A 24	Rigel
A 31	Malaspina
A 32	Tofiño
A 33	Hespérides
A 91	Astrolabio
A 111	Alerta

Auxiliaries

A 01	Contramaestre Casado
A 04	Martín Posadillo
A 05	El Camino Español
A 11	Marqués de la Ensenada
A 14	Patiño
A 20	Neptuno
A 51	Mahón
A 52	Las Palmas
A 53	La Graña
A 65	Marinero Jarano
A 66	Condestable Zaragoza
A 71	Juan Sebastián de Elcano
A 72	Arosa
A 74	La Graciosa
A 75	Sisargas
A 76	Giralda
A 77	Sálvora
A 82	Guardiamarina Salas
A 83	Guardiamarina Godínez
A 84	Guardiamarina Rull
A 85	Guardiamarina Chereguini
A 101	Mar Caribe

SUBMARINES

0 + 4 S 80 CLASS (SSK)

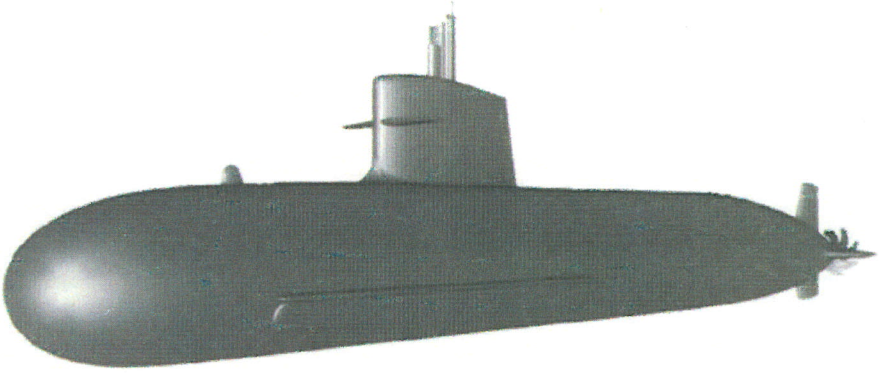
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
–	S 81	IZAR, Cartagena	2004	2009	2011
–	S 82	IZAR, Cartagena	2005	2010	2012
–	S 83	IZAR, Cartagena	2006	2011	2013
–	S 84	IZAR, Cartagena	2007	2012	2014

Displacement, tons: 2,120 surfaced; 2,345 dived
Dimensions, feet (metres): 233.0 × 27.6 × 23.9 *(71.0 × 8.4 × 7.3)*
Main machinery: Diesel electric; 2 diesels; 3,600 hp *(2.65 MW)*; 1 motor; 3,500 hp *(2.6 MW)*; 1 shaft; AIP (MESMA?) system
Speed, knots: 12 surfaced; 20 dived
Complement: 32

Missiles: To be announced.
Torpedoes: 6—21 in *(533 mm)* bow tubes.
Countermeasures: To be announced.
Weapons control: To be announced.
Radars: To be announced.
Sonars: To be announced.

Programmes: Approval for the procurement of four submarines was given by the Spanish Cabinet on 5 September 2003. Construction is expected to start in 2004 following a formal contract. The national design is derived from the 'Scorpene' class and includes Air Independent Propulsion (AIP). A land-attack capability, possibly Tomahawk, is to be fitted. A second batch of four boats may follow.

NEW ENTRY



S 80
9/2003, IZAR* / 0570975

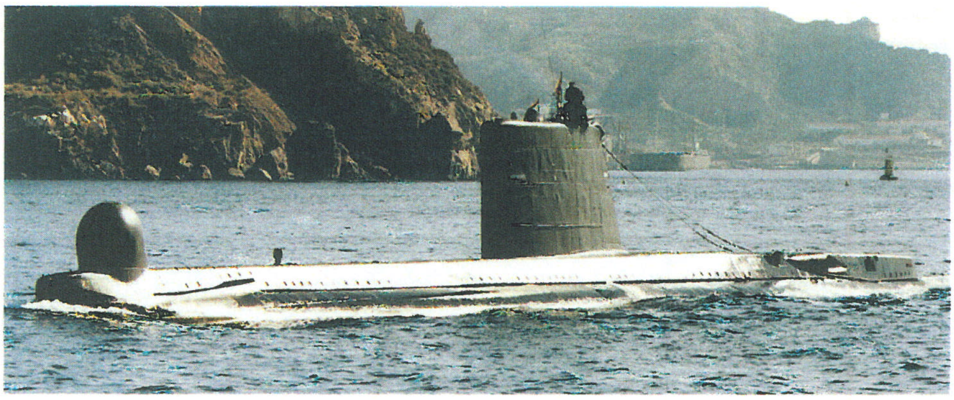
2 DELFÍN (DAPHNE) CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
TONINA	S 62	Bazán, Cartagena	2 Mar 1970	3 Oct 1972	10 July 1973
MARSOPA	S 63	Bazán, Cartagena	19 Mar 1971	15 Mar 1974	12 Apr 1975

Displacement, tons: 869 surfaced; 1,043 dived
Dimensions, feet (metres): 189.6 × 22.3 × 15.1 *(57.8 × 6.8 × 4.6)*
Main machinery: Diesel-electric; 2 SEMT-Pielstick 12 PA4 V 185 diesels; 2,450 hp(m) *(1.8 MW)*; 2 Jeumont Schneider alternators; 1.7 MW; 2 motors; 2,600 hp(m) *(1.9 MW)*; 2 shafts
Speed, knots: 13.5 surfaced; 15.5 dived
Range, miles: 4,300 snorting at 7.5 kt; 2,710 surfaced at 12.5 kt
Complement: 47 (6 officers)

Torpedoes: 12—21.7 in *(550 mm)* (8 bow, 4 stern) tubes. 12 combination of (a) ECAN L5 Mod 3/4; dual purpose; active/passive homing to 9.5 km *(5.1 n miles)* at 35 kt; warhead 150 kg; depth to 550 m *(1,800 ft)*.
(b) ECAN F17 Mod 2; wire-guided; active/passive homing to 20 km *(10.8 n miles)* at 40 kt; warhead 250 kg; depth 600 m *(1,970 ft)*.
Mines: 12 in lieu of torpedoes.
Countermeasures: ESM: THORN EMI Manta; radar warning.
Weapons control: DLT-3A TFCS.
Radars: Surface search: Thomson-CSF DRUA 31 or 33A; I-band.
Sonars: Thomson Sintra DSUV 22; passive search and attack; medium frequency.
Thomson Sintra DUUA 2A; active search and attack; 8 or 8.4 kHz active.

Programmes: First pair ordered 26 December 1966 and second pair in March 1970. Built with extensive French assistance.

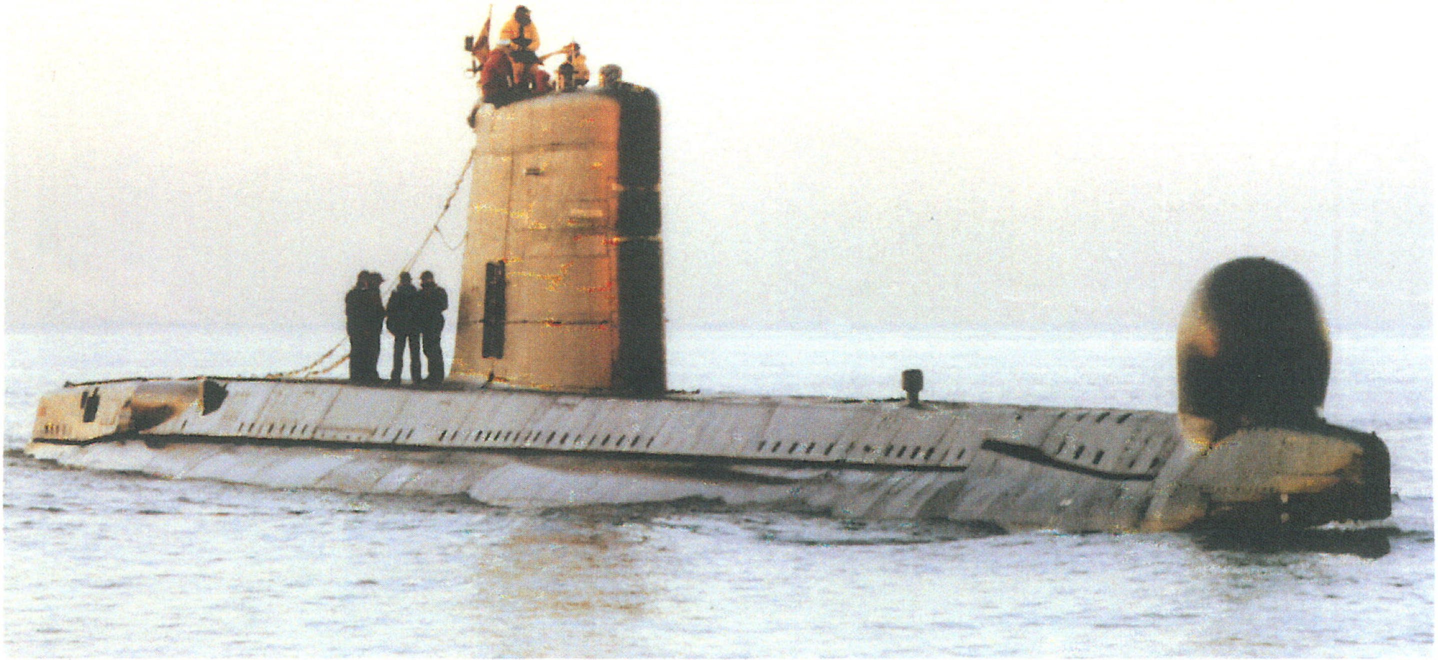


TONINA
1/1999, Diego Quevedo / 0080606

Modernisation: The class was taken in hand from 1983 for modernisation of sonar (DUUA 2A for DUUA 1), updating of fire control and torpedo handling. Torpedo tubes were also linered to 21 in *(533 mm)*. Last one completed at the end of 1988. ESM updated in 1990-91. Torpedo fire control updated for the F17 wire-guided weapons in *Marsopa* in 1994-95.

Structure: Diving depth, 300 m *(984 ft)*.
Operational: Two of this class decommissioned in 2003, *Tonina* expected to decommission in 2005 and *Marsopa* in 2006. Based at Cartagena.

UPDATED



TONINA
1/2003, A Campanera i Rovira* / 0570947

4 GALERNA (AGOSTA) CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
GALERNA	S 71	Bazán, Cartagena	5 Sep 1977	5 Dec 1981	22 Jan 1983
SIROCO	S 72	Bazán, Cartagena	27 Nov 1978	13 Nov 1982	5 Dec 1983
MISTRAL	S 73	Bazán, Cartagena	30 May 1980	14 Nov 1983	5 June 1985
TRAMONTANA	S 74	Bazán, Cartagena	10 Dec 1981	30 Nov 1984	27 Jan 1986

Displacement, tons: 1,490 surfaced; 1,740 dived
Dimensions, feet (metres): 221.7 × 22.3 × 17.7 *(67.6 × 6.8 × 5.4)*
Main machinery: Diesel-electric; 2 SEMT-Pielstick 16 PA4 V 185 VG diesels; 3,600 hp(m) *(2.7 MW)*; 2 Jeumont Schneider alternators; 1.7 MW; 1 motor; 4,600 hp(m) *(3.4 MW)*; 1 cruising motor; 32 hp(m) *(23 kW)*; 1 shaft
Speed, knots: 12 surfaced; 20 dived; 17.5 sustained
Range, miles: 8,500 snorting at 9 kt; 350 dived on cruising motor at 3.5 kt
Complement: 54 (6 officers)

Torpedoes: 4—21 in *(533 mm)* tubes. 20 combination of (a) ECAN L5 Mod 3/4; dual purpose; active/passive homing to 9.5 km *(5.1 n miles)* at 35 kt; warhead 150 kg; depth to 550 m *(1,800 ft)*. (b) ECAN F17 Mod 2; wire-guided; active/passive homing to 20 km *(10.8 n miles)* at 40 kt; warhead 250 kg; depth 600 m *(1,970 ft)*.
Mines: 19 can be carried if torpedo load is reduced to 9.
Countermeasures: ESM: THORN EMI/Inisel Manta E; radar warning.
Weapons control: DLA-2A TFCS.
Radars: Surface search: Thomson-CSF DRUA 33C; I-band.
Sonars: Thomson Sintra DSUV 22; passive search and attack; medium frequency.
Thomson Sintra DUUA 2A/2B; active search and attack; 8 or 8.4 kHz active.
DUUX 2A/5; passive; rangefinding. Eledone; intercept.
SAES Solarsub towed passive array; low frequency.

Programmes: First two ordered 9 May 1975 and second pair 29 June 1977. Built with some French advice. About 67 per cent of equipment and structure from Spanish sources.
Modernisation: Modernised with improved torpedo fire control, new ESM and IR enhanced periscopes. New main batteries installed with central control monitoring. *Galerna* started in April 1993 and completed in late 1994, *Siroco* in mid-1995, *Tramontana* in early 1997, and *Mistral* in 2000. The plan to fit SSM has been shelved. Solarsub towed arrays are being fitted to all of the class during overhauls. At least one submarine capable of being fitted with Dry Dock Shelter.
Structure: Diving depth, 300 m *(984 ft)*.
Operational: Endurance, 45 days. Based at Cartagena.

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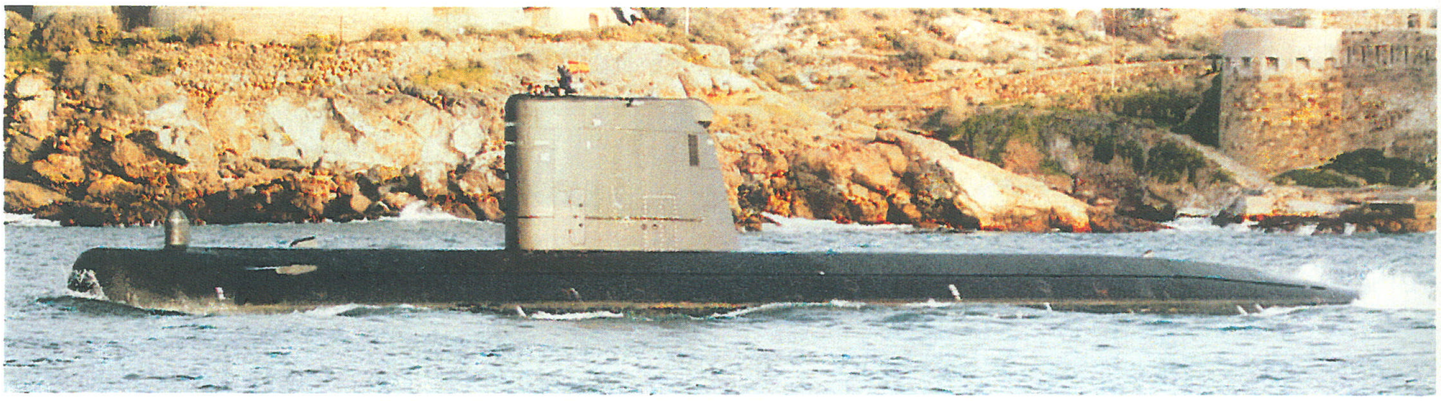
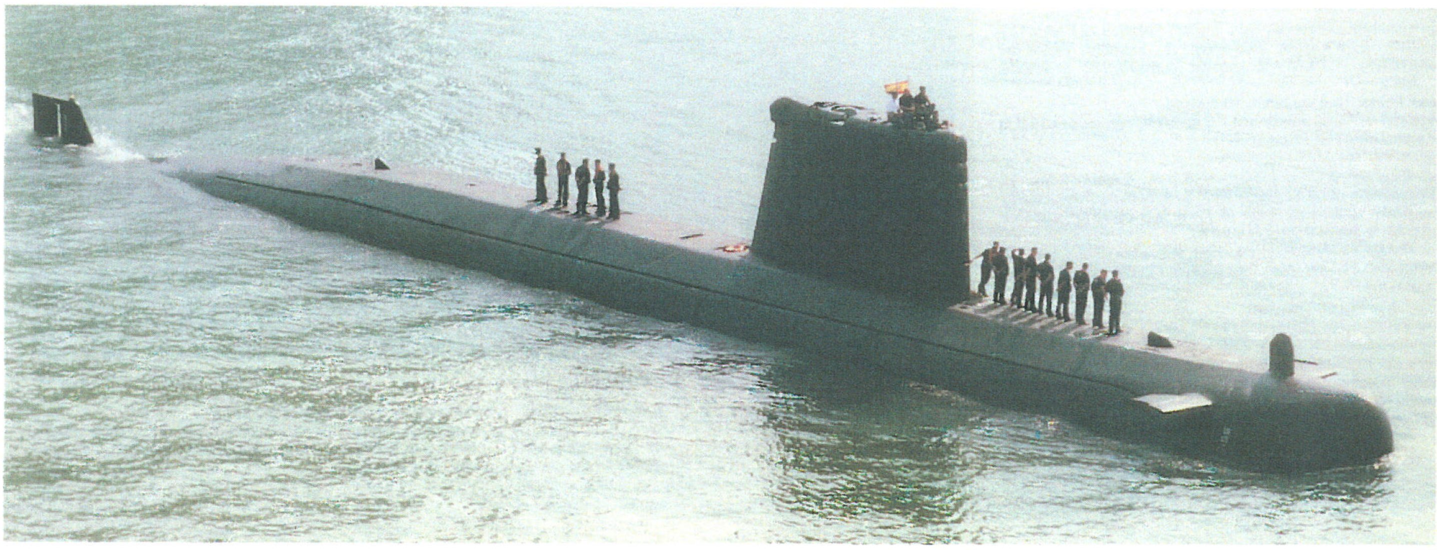
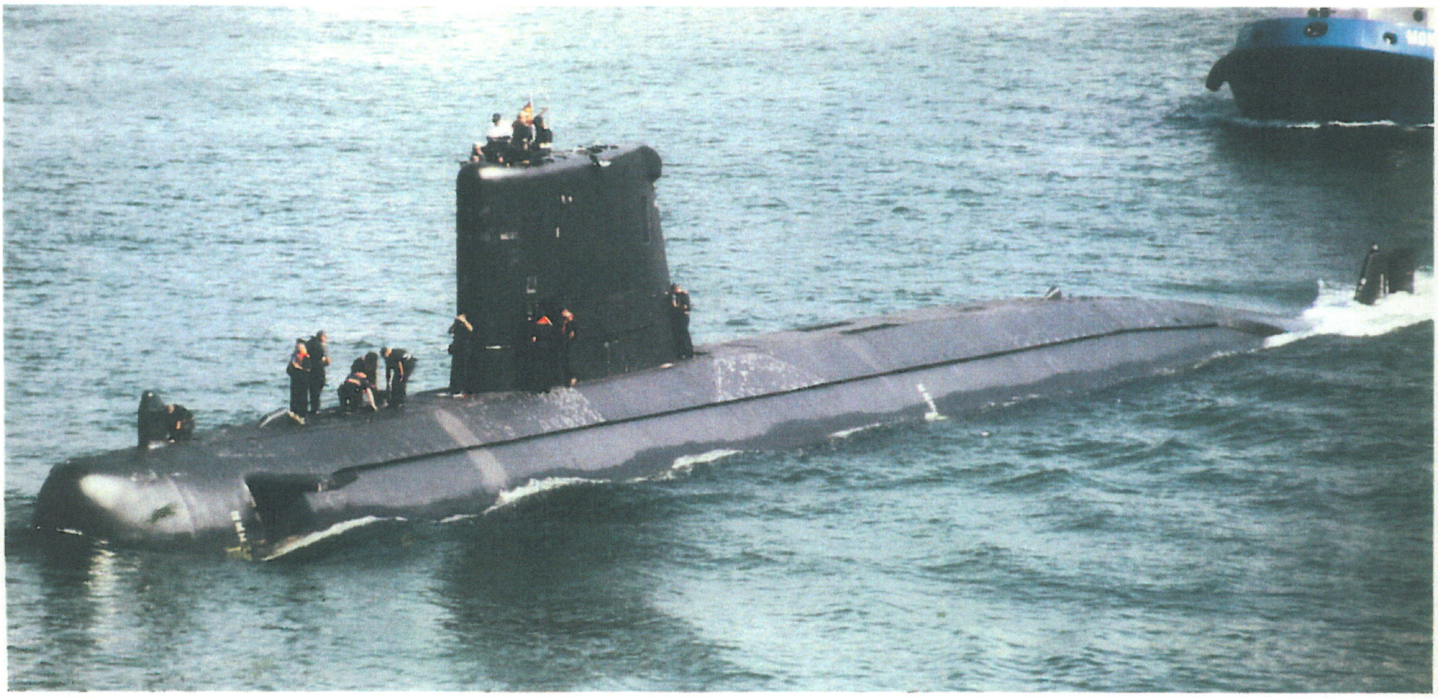


GALERNA *1/2001, Diego Quevedo* / 0106879



TRAMONTANA *6/2000, Camil Busquets i Vilanova* / 0132785



MISTRAL *6/2002, A Campanera i Rovira* / 0528970

AIRCRAFT CARRIERS

1 PRÍNCIPE DE ASTURIAS CLASS (CV)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
PRÍNCIPE DE ASTURIAS (ex-*Almirante Carrero Blanco*)	R 11	Bazán, Ferrol	8 Oct 1979	22 May 1982	30 May 1988

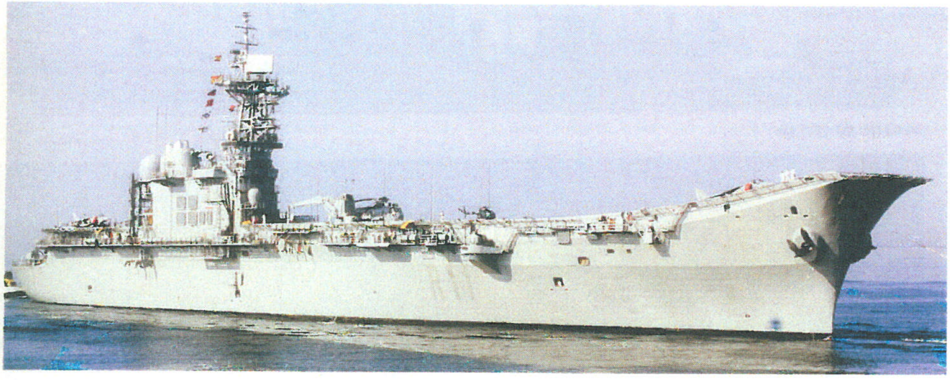
Displacement, tons: 17,188 full load
Dimensions, feet (metres): 642.7 oa; 615.2 pp × 79.7 × 30.8 *(195.9; 187.5 × 24.3 × 9.4)*
Flight deck, feet (metres): 575.1 × 95.1 *(175.3 × 29)*
Main machinery: 2 GE LM 2500 gas turbines; 46,400 hp *(34.61 MW)* sustained; 1 shaft; LIPS cp prop; 2 motors; 1,600 hp(m) *(1.18 MW)*; retractable prop
Speed, knots: 25 (4.5 on motors). **Range, miles:** 6,500 at 20 kt
Complement: 555 (90 officers) plus 208 (Flag Staff (7 officers) and Air Group)

Guns: 4 Bazán Meroka Mod 2A/2B 12-barrelled 20 mm/120 ❶; 3,600 rds/min combined to 2 km.
2 Rheinmetall 37 mm saluting guns.

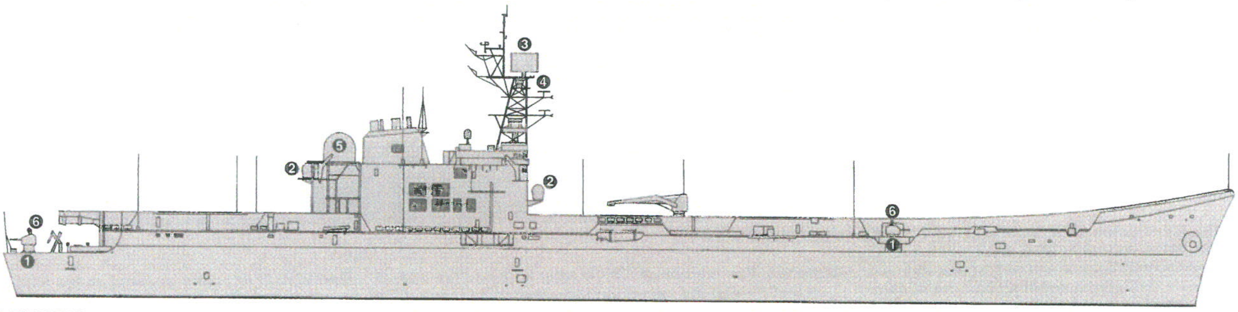
Countermeasures: Decoys: 4 Loral Hycor SRBOC 6-barrelled fixed Mk 36; IR flares and chaff to 4 km *(2.2 n miles)*.
SLQ-25 Nixie; towed torpedo decoy.
US Prairie/Masker; hull noise/blade rate suppression.
ESM/ECM: Elettronica Nettunel; intercept and jammers.
Combat data systems: Tritan Digital Command and Control System NTDS; Links 11 and 14. Marconi Matra SCOT 3 Secomsat ❷. SSR-1, WSC-3 (UHF).
Weapons control: 4 Selenia directors (for Meroka). Radamec 2000 series.
Radars: Air search: Hughes SPS-52C/D ❸; 3D; E/F-band; range 439 km *(240 n miles)*.
Surface search: ISC Cardion SPS-55 ❹; I/J-band.
Aircraft control: ITT SPN-35A ❺; J-band.
Fire control: 4 Sperry/Lockheed VPS 2 ❻; I-band (for Meroka).
RTN 11L/X; I/J-band; missile warning.
Selenia RAN 12L (target designation); I/J-band.
Tacan: URN 25.

Fixed-wing aircraft: 6-12 AV-8B Harrier II/Harrier Plus.
Helicopters: 6-10 SH-3 Sea Kings; 2-4 AB 212EW.

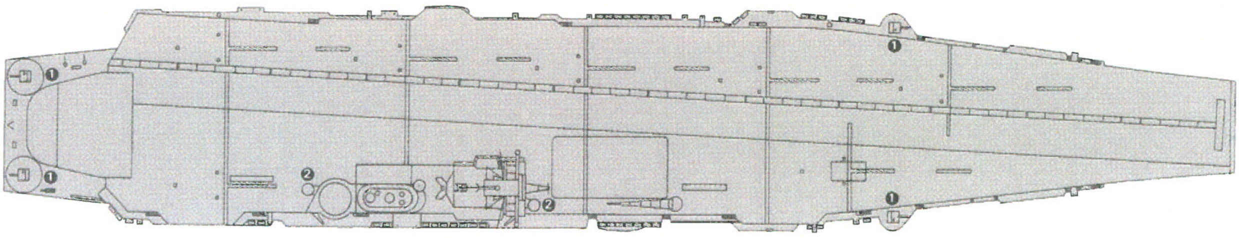
Programmes: Ordered on 29 June 1977. Associated US firms were Gibbs and Cox, Dixencast, Bath Iron Works and Sperry SM. Commissioning delays caused by changes to command and control systems and the addition of a Flag Bridge.
Modernisation: After two years' service some modifications were made to the port after side of the island, to improve briefing rooms and provide sheltered parking space for FD vehicles. Also improved accommodation has been added on for six officers and 50 specialist ratings. Mid-life refit planned for 2006-08.
Structure: Based on US Navy Sea Control Ship design. 12° ski-jump of 46.5 m. Two flight deck lifts, one right aft. Two LCVPs carried. Two pairs of fin stabilisers. The hangar is 24,748 sq ft *(2,300 m²)*. The Battle Group Commander occupies the lower bridge. Two saluting guns have been mounted on the port quarter.
Operational: Three Sea Kings have Searchwater AEW radar. Aircraft complement could be increased to 37 (parking on deck) in an emergency but maximum operational number is 29 (17 in hangar, 12 on deck). A typical air wing includes eight/ten AV-8B/AV-8B Plus, five SH-3 (including two AEW) and three/four AB-212. Based at Rota.
Sales: Modified design built for Thailand. ***UPDATED***



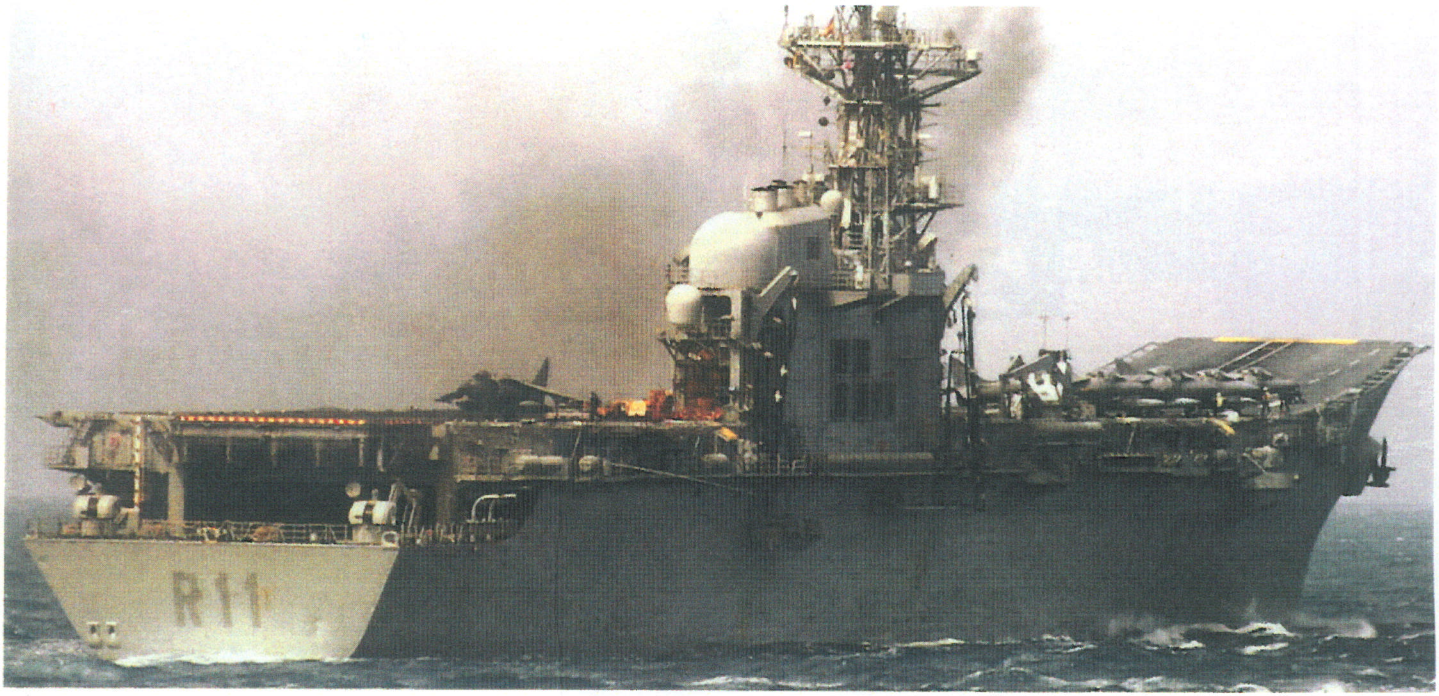
PRÍNCIPE DE ASTURIAS
5/2000, Camil Busquets i Vilanova / 0105620



PRÍNCIPE DE ASTURIAS
(Scale 1 : 1,200), Ian Sturton



PRÍNCIPE DE ASTURIAS
(Scale 1 : 1,200), Ian Sturton / 0130391



PRÍNCIPE DE ASTURIAS
5/2002, Globke Collection* / 0529131

FRIGATES

Notes: Plans for a future frigate class have been suspended.

2 + 2 ALVARO DE BAZÁN CLASS (FFGHM)

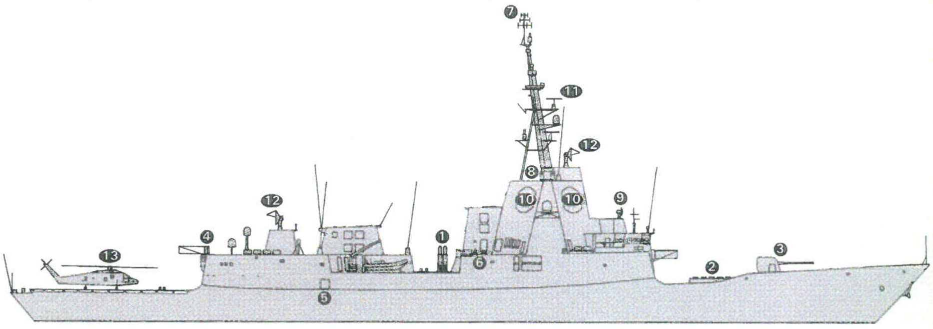
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ALVARO DE BAZÁN	F 101	IZAR, Ferrol	14 June 1999	27 Oct 2000	19 Sep 2002
ALMIRANTE DON JUAN DE BORBÓN	F 102	IZAR, Ferrol	27 Oct 2000	28 Feb 2002	3 Dec 2003
BLAS DE LEZO	F 103	IZAR, Ferrol	28 Feb 2002	16 May 2003	Dec 2004
MENDEZ NUÑEZ	F 104	IZAR, Ferrol	16 May 2003	Sep 2004	Feb 2006

Displacement, tons: 5,853 full load
Dimensions, feet (metres): 481.3 oa; 437 pp × 61 × 16.1 *(146.7; 133.2 × 18.6 × 4.9)*
Flight deck, feet (metres): 86.6 × 56 *(26.4 × 17)*
Main machinery: CODOG; 2 GE LM 2500 gas turbines; 47,328 hp(m) *(34.8 MW)* sustained; 2 Bazán/Caterpillar diesels; 12,240 hp(m) *(9 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 28. **Range, miles:** 4,500 at 18 kt
Complement: 250 (35 officers)

Missiles: SSM: 8 Harpoon Block II ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: Mk 41 VLS (48 cells) ❷ 32 GDC Standard SM-2MR (Block IIIA); command/inertial guidance; semi-active radar homing to 167 km *(90 n miles)* at 2 Mach. 64 Evolved Sea Sparrow RIM 162B (in quadpacks); semi-active radar homing to 18 km (*9.7 n miles*) at 3.6 Mach; warhead 39 kg.
Guns: 1 FMC 5 in *(127 mm)*/54 Mk 45 Mod 2 ❸ (ex-US); 20 rds/min to 23 km (*12.6 n miles*); weight of shell 32 kg.
1 Bazán 20 mm/120 Meroka 2B ❹; 3,600 rds/min to 2 km (fitted for but not with) 2 Oerlikon 20 mm.
Torpedoes: 4—323 mm (2 twin) Mk 32 Mod 9 fixed launchers ❺. Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
A/S mortars: 2 ABCAS/SSTDS launchers.
Countermeasures: Decoys: 4 SRBOC Mk 36 Mod 2 chaff launchers ❻. SLQ-25A Nixie torpedo decoy.
ESM: Regulus Mk-9500; ❼ intercept.
ECM: Ceselsa Aldebaran ❽; jammer.
Combat data systems: Lockheed Aegis Baseline 5 Phase III (DANCS); Link 11/16. SCOT 3, SATURN 3S.
Weapons control: Sirius optronic director ❾; FABA Dorna GFCS. Sainsel DLT 309 TFCS. SQR-4 helo datalink.
Radars: Air/surface search: Aegis SPY-1D ❿.
Surface search: DRS SPS-67 (RAN 12S) ⓫.
Fire control: 2 Raytheon SPG-62 Mk 99 (for SAM) ⓬.
Navigation: 1 Raytheon SPS-73(v); I-band.
Sonars: Raytheon DE 1160 LF; hull-mounted; active search and attack; medium frequency. Possible ATAS active towed sonar.

Helicopters: 1 SH-60B Seahawk Lamps III ⓭.

Programmes: Project definition from September 1992 to July 1995, and then extended to July 1996 to incorporate Aegis. Design collaboration with German and Netherlands shipyards started 27 January 1994. Spain withdrew from the APAR air defence radar project in June 1995 and decided to incorporate Aegis SPY-1D into the design. Production order agreed on 21 October 1996 and building approved 24 January 1997. FSC in November 1997.



ALVARO DE BAZÁN

(Scale 1 : 1,200), Ian Sturton / 0529156

ALVARO DE BAZÁN

6/2003, Spanish Navy* / 0570979

Structure: The inclusion of SPY-1D radar increased the original size of the ship and caused major changes to the shape of the superstructure. Stealth technology incorporated. Indal RAST helicopter system. Hangar for one helicopter. 127 mm gun for gunfire support to land forces, taken from USN *Tarawa* class. RAM may be fitted vice Meroka.

Operational: All based at Ferrol as the 51st Squadron. F 101 completed the USN Combined Combat Systems Ship Qualifications Trial (CSSQT) 17-22 July 2003. This included live SM-2 firings.

UPDATED

ALVARO DE BAZÁN

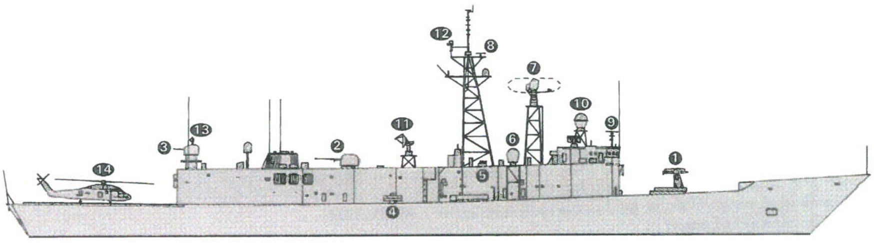
3/2003, Diego Quevedo* / 0570974

6 SANTA MARÍA CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SANTA MARÍA	F 81	Bazán, Ferrol	23 May 1982	24 Nov 1984	12 Oct 1986
VICTORIA	F 82	Bazán, Ferrol	16 Aug 1983	23 July 1986	11 Nov 1987
NUMANCIA	F 83	Bazán, Ferrol	8 Jan 1986	30 Jan 1987	8 Nov 1988
REINA SOFÍA (ex-*América*)	F 84	Bazán, Ferrol	12 Dec 1987	19 July 1989	18 Oct 1990
NAVARRA	F 85	Bazán, Ferrol	15 Apr 1991	23 Oct 1992	30 May 1994
CANARIAS	F 86	Bazán, Ferrol	15 Apr 1992	21 June 1993	14 Dec 1994

Displacement, tons: 3,610 standard; 3,969 full load
Dimensions, feet (metres): 451.2 × 46.9 × 24.6 *(137.7 × 14.3 × 7.5)*
Main machinery: 2 GE LM 2500 gas turbines; 41,000 hp *(30.59 MW)* sustained; 1 shaft; cp prop
2 auxiliary retractable props; 650 hp *(484 kW)*
Speed, knots: 29. **Range, miles:** 4,500 at 20 kt
Complement: 223 (13 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: 32 GDC Pomona Standard SM-1MR; Mk 13 Mod 4 launcher ①; command guidance; semi-active radar homing to 46 km *(25 n miles)* at 2 Mach.
Both missile systems share a common magazine.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 ②; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
1 Bazán 20 mm/120 12-barrelled Meroka Mod 2A or 2B ③; 3,600 rds/min combined to 2 km. 2—12.7 mm MGs.
Torpedoes: 6—324 mm US Mk 32 (2 triple) tubes ④. Honeywell/Alliant Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 4 Loral Hycor SRBOC 6-barrelled fixed Mk 37 Mod 1/2 ⑤; IR flares and chaff to 4 km *(2.2 n miles)*.
Prairie/Masker: hull noise/blade rate suppression.
SLQ-25 Nixie; torpedo decoy.
ESM/ECM: Elettronica Nettunel or Mk 3000 Neptune (F 84-86); intercept and jammer.
Combat data systems: IPN 10 action data automation; Link 11. SQQ 28 LAMPS III helo datalink. Saturn and SCOT 3 Secomsat ⑥ fitted.
Weapons control: Loral Mk 92 Mod 2 (Mod 6 with CORT in F 85 and 86). Enosa optronic tracker for Meroka 2B.



REINA SOFÍA *(Scale 1 : 1,200), Ian Sturton /* 0130395

Radars: Air search: Raytheon SPS-49(V)4/6 ⑦; C/D-band; range 457 km *(250 n miles)*.
Surface search: Raytheon SPS-55 ⑧; I-band.
Navigation: Raytheon 1650/9 ⑨; I/J-band.
Fire control: RCA Mk 92 Mod 4/6 ⑩; I/J-band.
Raytheon STIR ⑪; I/J-band.
Selenia RAN 12L ⑫; D-band (for Meroka).
Sperry/Lockheed VPS 2 ⑬; I-band (for Meroka).
Tacan: URN 25.
Sonars: Raytheon SQS-56 (DE 1160); hull-mounted; active search and attack; medium frequency.
Gould SQR-19(V)2; tactical towed array (TACTASS); passive; very low frequency.

Helicopters: 2 Sikorsky SH-60B ⑭ (only one normally embarked).

Programmes: Three ordered 29 June 1977. The execution of this programme was delayed due to the emphasis placed on the carrier construction. The fourth ship was ordered on 19 June 1986, and numbers five and six on 26 December 1989.
Modernisation: F 85 and F 86 are fitted with the improved Mod 2B Meroka CIWS which includes an Enosa optronic tracker. SCOT SATCOM fitted in F 85 and F 84. Others may be similarly fitted. All modernisation with RAN 12L target designator for Meroka but VPS 2 fire control radar is yet to be replaced by RAN 30X radar. An update programme is due to start in 2005. Details have not been confirmed but the aim is to adapt the ships for littoral warfare.
Structure: Based on the US FFG 7 'Oliver Perry' class although broader in the beam and therefore able to carry more topweight. Fin stabilisers fitted. RAST helicopter handling system. *Navarra* and *Canarias* have an indigenous combat data system thereby increasing national inputs to 75 per cent.
Operational: All based at Rota as the 41st Squadron.

UPDATED

REINE SOFIA *4/2003*, A Sharma /* 0570946

NAVARRA *2/2003*, A Campanera i Rovira /* 0570940

4 BALEARES (F 70) CLASS (FFGM)

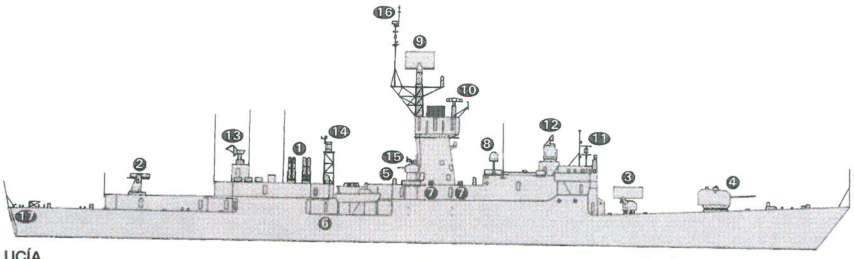
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
BALEARES	F 71	Bazán, Ferrol	31 Oct 1968	20 Aug 1970	24 Sep 1973
ANDALUCÍA	F 72	Bazán, Ferrol	2 July 1969	30 Mar 1971	23 May 1974
ASTURIAS	F 74	Bazán, Ferrol	30 Mar 1971	13 May 1972	2 Dec 1975
EXTREMADURA	F 75	Bazán, Ferrol	3 Nov 1971	21 Nov 1972	10 Nov 1976

Displacement, tons: 3,350 standard; 4,177 full load
Dimensions, feet (metres): 438 × 46.9 × 15.4; 25.6 (sonar) *(133.6 × 14.3 × 4.7; 7.8)*
Main machinery: 2 Combustion Engineering V2M boilers; 1,200 psi *(84.4 kg/cm²)*; 950°F *(510°C)*; 1 Westinghouse turbine; 35,000 hp(m) *(25.7 MW)*; 1 shaft
Speed, knots: 28. **Range, miles:** 4,500 at 20 kt
Complement: 256 (15 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon (4 normally carried) ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: 16 GDC Pomona Standard SM-1MR; Mk 22 Mod 0 launcher ❷; command guidance; semi-active radar homing to 46 km *(25 n miles)* at 2 Mach.
A/S: Honeywell ASROC Mk 112 octuple launcher ❸ (except F 71); 8 reloads; inertial guidance to 1.6-10 km *(1-5.4 n miles)*; payload Mk 46 torpedo.
Guns: 1 FMC 5 in *(127 mm)*/54 Mk 42 Mod 9 ❹; dual purpose; 20-40 rds/min to 24 km *(13 n miles)* anti-surface; 14 km *(7.7 n miles)* anti-aircraft; weight of shell 32 kg; 600 rounds in magazine.
2 Bazán 20 mm/120 12-barrelled Meroka ❺; 3,600 rds/min combined to 2 km. 2—12.7 mm MGs.
Torpedoes: 4—324 mm US Mk 32 fixed tubes (fitted internally and angled at 45° ❻. Honeywell/Alliant Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 4 Loral Hycor SRBOC Mk 36 Mod 2 6-barrelled chaff launchers ❼.
ESM: Ceselsa Deneb; or Mk 1600; intercept.
ECM: Ceselsa Canopus; or Mk 1900; jammer.
Combat data systems: Tritan 1 action data automation; Link 11. Saturn SATCOM ❽.
Weapons control: Mk 68 GFCS. Mk 74 missile system with Mk 73 director. Mk 114 torpedo control. Dorna GFCS on trial (F 71).
Radars: Air search: Hughes SPS-52B ❾; 3D; E/F-band; range 439 km *(240 n miles)*.
Surface search: Raytheon SPS-10 ❿; G-band.
Navigation: Raytheon Marine Pathfinder ⓫; I/J-band.
Fire control: Western Electric SPG-53B ⓬; I/J-band (for Mk 68).
Raytheon SPG-51C ⓭; G/I-band (for Mk 73).
Selenia RAN 12L ⓮; I-band (for Meroka). 2 Sperry VPS 2 ⓯ (for Meroka).
Tacan: SRN 15A ⓰.
Sonars: Raytheon SQS-56 (DE 1160); hull-mounted; active search and attack; medium frequency.
EDO SQS-35V ⓱; VDS; active search and attack; medium frequency.

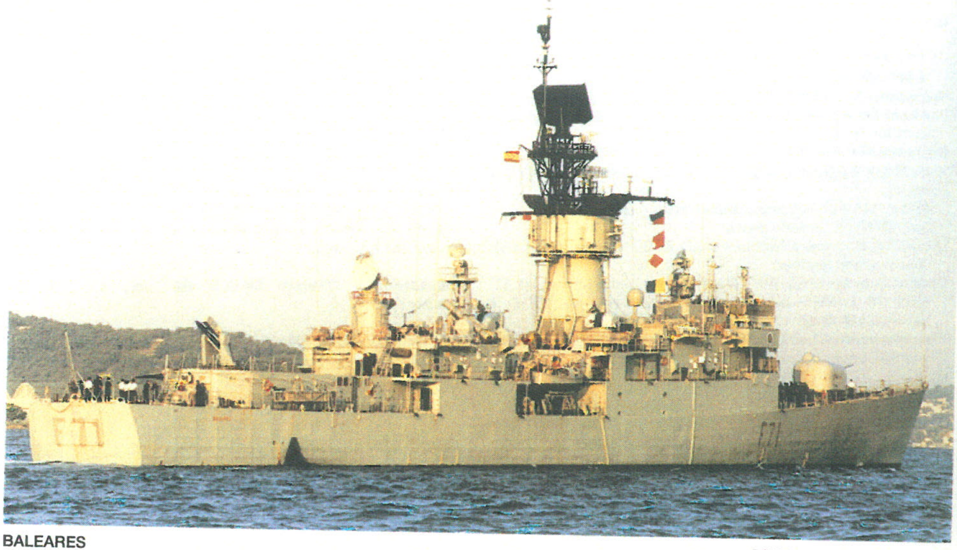
Programmes: This class resulted from a very close co-operation between Spain and the US. Programme was approved 17 November 1964, technical support agreement with USA being signed 31 March 1966. US Navy supplied weapons and sensors. Major hull sections, turbines and gearboxes made at El Ferrol, superstructures at Alicante, boilers, distilling plants and propellers at Cádiz.
Modernisation: The mid-life update programme was done in two stages; all had completed the first stage by the end of 1987 and *Asturias* was the first to be fully modernised in 1988; *Extremadura* completed in May 1989, *Baleares* in July 1990 and *Andalucía* in February 1991. Changes included the fitting of two Meroka 20 mm CIWS, Link 11, Tritan data control, Deneb passive EW systems, four Mk 36 SRBOC chaff launchers and replacing SQS-23 with DE 1160 sonar. The stern torpedo tubes have been replaced by VDS.
Structure: Generally similar to US Navy's 'Knox' class although they differ in the missile system and lack of helicopter facilities.
Operational: All based at Ferrol, forming the 31st Squadron. F 73 decommissioned in 2004. F 71 to decommission in 2005 and F 72 in 2006.

UPDATED



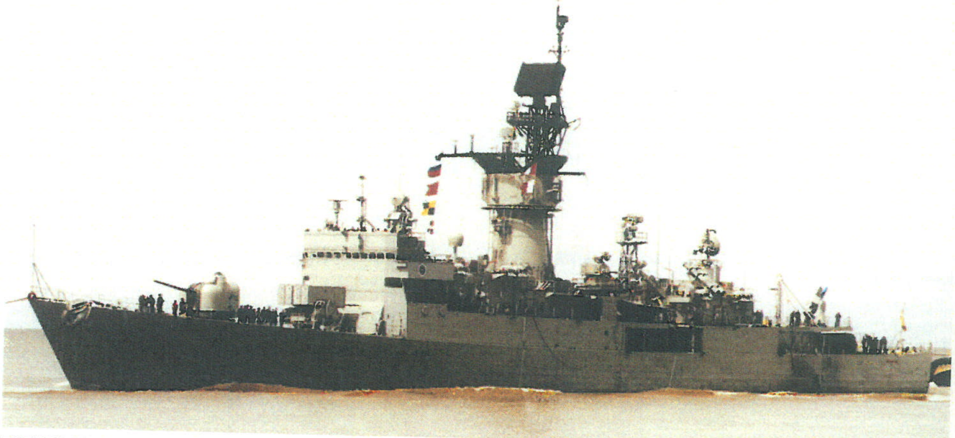
ANDALUCÍA

(Scale 1 : 1,200), Ian Sturton / 0529155



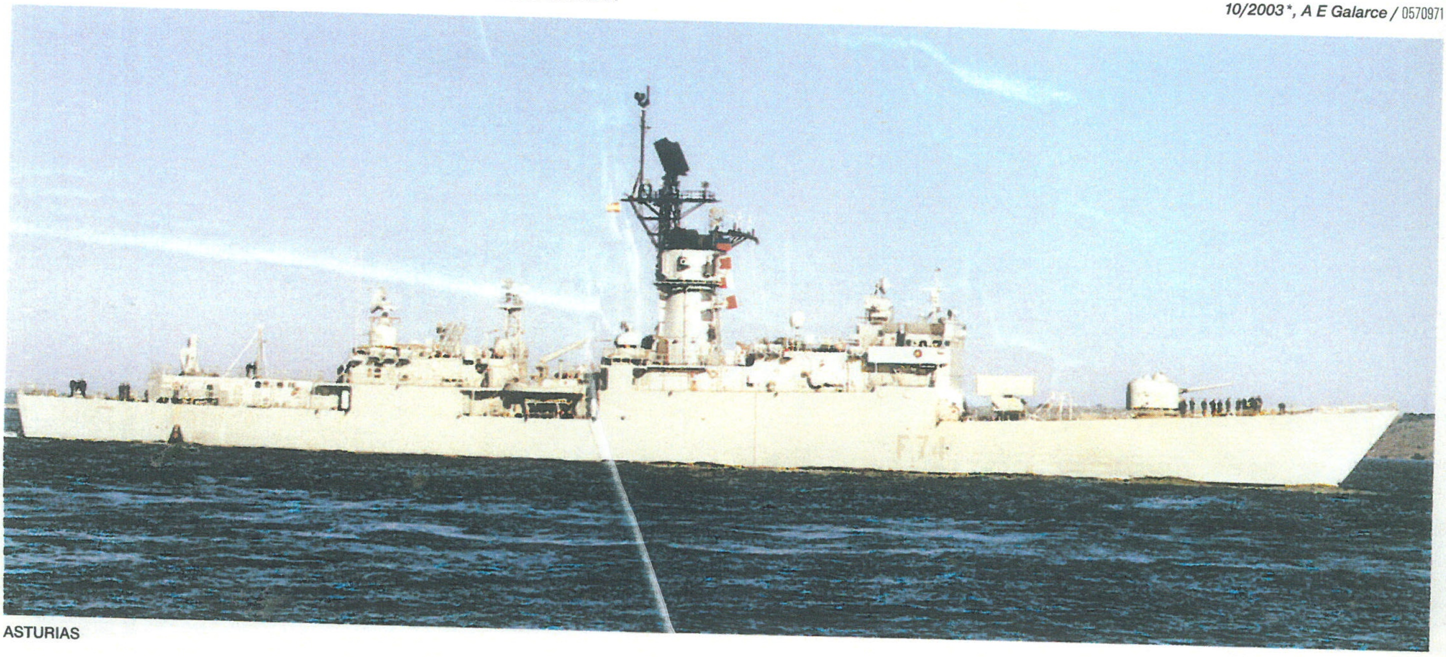
BALEARES

9/2003, B Prézelin* / 0570970



EXTREMADURA

10/2003, A E Galarce* / 0570971



ASTURIAS

3/2003, B Prézelin* / 0570969

SHIPBORNE AIRCRAFT

Numbers/Type: 4/12/1 BAe/McDonnell Douglas EAV-8B (Harrier II)/EAV-8B (Harrier Plus)/ TAV-8B.
Operational speed: 562 kt *(1,041 km/h)*.
Service ceiling: Not available.
Range: 480 n miles *(889 km)*.
Role/Weapon systems: First batch of nine delivered in 1987-88 and a further eight in 1996-97. All to be upgraded to AV-8B Harrier Plus standard with APG-65 radar plus FLIR by 2004. A further TAV-8B twin seat delivered in September 2000. Sensors: ECM; ALQ 164. Weapons: Strike; two 25 mm GAU-12/U cannon, two or four AIM-9L Sidewinders, two or four AGM-65E Mavericks; up to 16 GP bombs. AMRAAM AIM-120 in updated aircraft. ***UPDATED***

HARRIER PLUS *11/2001, Adolfo Ortigueira Gil* / 0528923

Numbers/Type: 8 Sikorsky SH-3D/G/H Sea King.
Operational speed: 118 kt *(219 km/h)*.
Service ceiling: 14,700 ft *(4,480 m)*.
Range: 542 n miles *(1,005 km)*.
Role/Weapon systems: Former ASW helicopters converted to tactical transport role. ASW equipment fitted for but not with. Can be replaced in 48 hours. Converted to 3H standard in 1996-97. APN-217 Doppler radar and IFF. Sensors: APS-124 search radar, Bendix AQS-18V dipping sonar, sonobuoys. Weapons: ASW; four Mk 46 torpedoes or depth bombs; 1—12.7 mm MG. ***UPDATED***

SEA KING *6/2003*, Adolfo Ortigueira Gil* / 0570959

Numbers/Type: 3 Sikorsky SH-3D Sea King AEW.
Operational speed: 110 kt *(204 km/h)*.
Service ceiling: 14,700 ft *(4,480 m)*.
Range: 542 n miles *(1,005 km)*.
Role/Weapon systems: Three Sea King helicopters were taken in hand in 1986 for conversion to AEW role to provide organic cover; first entered service August 1987. Radar to be replaced by RACAL 2000. Sensors: THORN EMI Searchwater radar, ESM. Weapons: Unarmed. ***VERIFIED***

SEA KING AEW *5/2001, Guy Toremans* / 0130130

Numbers/Type: 12 Sikorsky SH-60B Seahawk (LAMPS III).
Operational speed: 135 kt *(249 km/h)*.
Service ceiling: 10,000 ft *(3,050 m)*.
Range: 600 n miles *(1,110 km)*.
Role/Weapon systems: ASW helicopter; delivery in 1988-89 for FFG 7 frigates. Six more Block 1 acquired in 2002 for new frigates, and original six to be upgraded to Block 1 with first two aircraft to be completed by October 2003. Sensors: Search radar, FLIR (Block I), sonobuoys, ECM/ESM. Weapons: ASW; two Mk 46 torpedoes or depth bombs. ASV; AGM-119B Penguin and AGM-114B/K Hellfire. ***VERIFIED***

SEA HAWK *6/2001, Diego Quevedo* / 0130131

Numbers/Type: 9 Agusta AB 212.
Operational speed: 106 kt *(196 km/h)*.
Service ceiling: 14,200 ft *(4,330 m)*.
Range: 230 n miles *(426 km)*.
Role/Weapon systems: Surface search; four are equipped for Fleet ECM support and have a datalink and six for Assault operations with the Amphibious Brigade. All ASW equipment and ASM missiles removed. Sensors: Selenia search radar, Mk 2000 EW system (in four); Elmer ECM. Weapons: 1—12.7 mm MG and 70 mm rocket launchers. ***UPDATED***

AB 212 *3/2002, A Campanera i Rovira* / 0529019

Numbers/Type: 10 Hughes 500MD.
Operational speed: 110 kt *(204 km/h)*.
Service ceiling: 10,000 ft *(3,050 m)*.
Range: 203 n miles *(376 km)*.
Role/Weapon systems: Used for training; secondary role is SAR and surface search. ASW role removed. Sensors: Some may have search radar, MAD. ***VERIFIED***

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500 MD *7/2002, Adolfo Ortigueira Gil* / 0528937

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: (1) The Air Force F/A-18 Hornet (C.15) and Eurofighter Typhoon (C.16) can be armed with Harpoon ASM. Air Force CN-235 are not used for maritime role.
(2) Three CASA C-212/400 are operated by the Fishery Department and are based at Torrejón (Madrid), Jerez and Alicante. Three Agusta A-109C helicopters are based at Alicante, Jerez and Santander.

Numbers/Type: 3 Cessna Citation II (C-550).
Operational speed: 275 kt *(509 km/h)*.
Service ceiling: 27,750 ft *(8,458 m)*.
Range: 2,000 n miles *(3,704 km)*.
Role/Weapon systems: Used for transport, training and reconnaissance. ***UPDATED***

CESSNA CITATION *7/2003*, Adolfo Ortigueira Gil* / 0570957

Numbers/Type: 14 CASA C-212 Aviocar.
Operational speed: 190 kt *(353 km/h)*.
Service ceiling: 24,000 ft *(7,315 m)*.
Range: 1,650 n miles *(3,055 km)*.
Role/Weapon systems: Operated by Air Force. Primary role SAR, secondary role surveillance. Based at Mallorca, Las Palmas and Madrid. Six are leased by Customs. Sensors: APS-128 radar, MAD, sonobuoys and ESM. Weapons (not SAR role): ASW; Mk 46 torpedoes or depth bombs. ASV; two rockets or machine gun pods. ***VERIFIED***

C-212 *5/2002, Adolfo Ortigueira Gil* / 0528933

Numbers/Type: 3 Fokker F27 Maritime.
Operational speed: 250 kt *(463 km/h).*
Service ceiling: 29,500 ft *(8,990 m).*
Range: 2,700 n miles *(5,000 km).*
Role/Weapon systems: Canaries and offshore patrol by Air Force. Are to be replaced by CN-235 in due course. Sensors: APS-504 search radar, cameras. Weapons: none.

UPDATED

F-27 *3/2003*, Adolfo Ortigueira Gil* / 0570958

Numbers/Type: 2/5 Lockheed P-3A/P-3B Plus Orion.
Operational speed: 410 kt *(760 km/h).*
Service ceiling: 28,300 ft *(8,625 m).*
Range: 4,000 n miles *(7,410 km).*
Role/Weapon systems: Air Force operation for long-range MR/ASW. Original P-3A aircraft supplemented in 1988 by P-3B Orions from Norway after Lockheed modernisation. P-3A aircraft upgraded to P-3A plus in 1995-97. The five P-3Bs are undergoing modernisation programme with improved acoustic signal processor, ALR-66 ESM, FLIR and new radar and communications. Sensors: APS-134 (Searchwater 2000 in due course); FLIR; search radar, AQS-81 MAD, ALR 66 V(3) ECM/ESM, 87 sonobuoys. Weapons: ASW; eight torpedoes or depth bombs internally; 10 underwing stations. ASV; four Harpoon or 127 mm rockets.

VERIFIED

P-3B *7/2002, Adolfo Ortigueira Gil* / 0528935

Numbers/Type: 10 Eurocopter AS 332 Super Puma.
Operational speed: 130 kt *(240 km/h).*
Service ceiling: 15,090 ft *(4,600 m).*
Range: 672 n miles *(1,245 km).*
Role/Weapon systems: Air Force operated for SAR/CSAR. Based at Mallorca, Las Palmas and Madrid.

UPDATED

AS 332 *7/2001, Adolfo Ortigueira Gil* / 0528932

PATROL FORCES

4 SERVIOLA CLASS (OFFSHORE PATROL VESSELS) (PSOH)

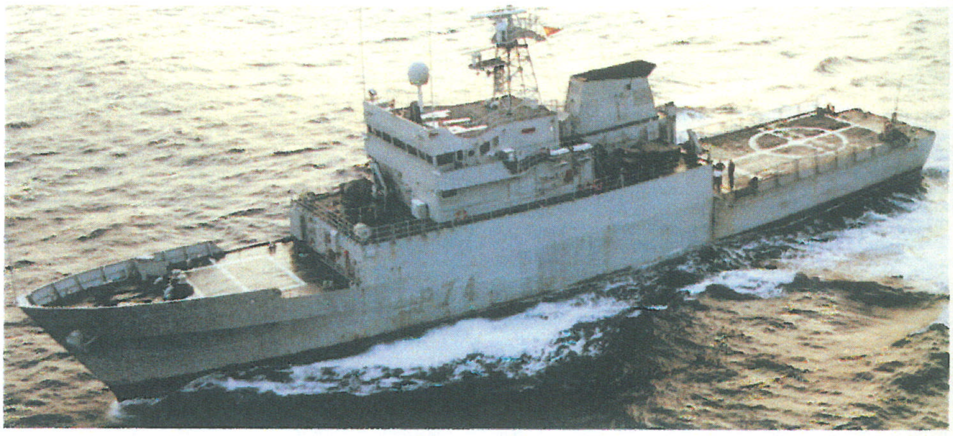
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SERVIOLA	P 71	Bazán, Ferrol	17 Oct 1989	10 May 1990	22 Mar 1991
CENTINELA	P 72	Bazán, Ferrol	12 Dec 1989	30 Mar 1990	24 Sep 1991
VIGÍA	P 73	Bazán, Ferrol	30 Oct 1990	12 Apr 1991	24 Mar 1992
ATALAYA	P 74	Bazán, Ferrol	14 Dec 1990	22 Nov 1991	29 June 1992

Displacement, tons: 1,147 full load
Dimensions, feet (metres): 225.4; 206.7 pp × 34 × 11 *(68.7; 63 × 10.4 × 3.4)*
Main machinery: 2 MTU-Bazán 16V 956 TB91 diesels; 7,500 hp (m) *(5.5 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 19. **Range, miles:** 8,000 at 12 kt
Complement: 42 (8 officers) plus 6 spare berths

Guns: 1 US 3 in *(76 mm)*/50 Mk 27; 20 rds/min to 12 km *(6.6 n miles)*; weight of shell 6 kg.
2—12.7 mm MGs.
Countermeasures: ESM: ULQ-13 (in P 71).
Weapons control: Bazán Alcor or MSP 4000 (P 73) optronic director. Hispano mini combat system. SATCOM.
Radars: Surface search: Racal Decca 2459; I-band.
Navigation: Racal Decca ARPA 2690 BT; I-band.

Helicopters: Platform for 1 AB 212.

Programmes: Project B215 ordered from Bazán, Ferrol in late 1988. The larger Milano design was rejected as being too expensive.
Modernisation: The guns are old stock refurbished but could be replaced by an OTO Melara 76 mm/62 or a Bofors 40 mm/70 Model 600 if funds can be found. Other equipment fits could include four Harpoon SSM, Meroka CIWS, Sea Sparrow SAM or a Bofors 375 mm ASW rocket launcher. No plans to carry out any of these improvements so far. EW equipment fitted in Serviola for training.



ATALAYA *7/2003*, Adolfo Ortigueira Gil* / 0570956

Structure: A modified 'Halcón' class design similar to ships produced for Argentina and Mexico. Helicopter facilities enabling operation in up to Sea State 4 using non-retractable stabilisers. Three firefighting pumps.

Operational: For EEZ patrol. *Vigía* based at Cádiz, *Serviola* and *Atalaya* at Ferrol and *Centinela* at Las Palmas.

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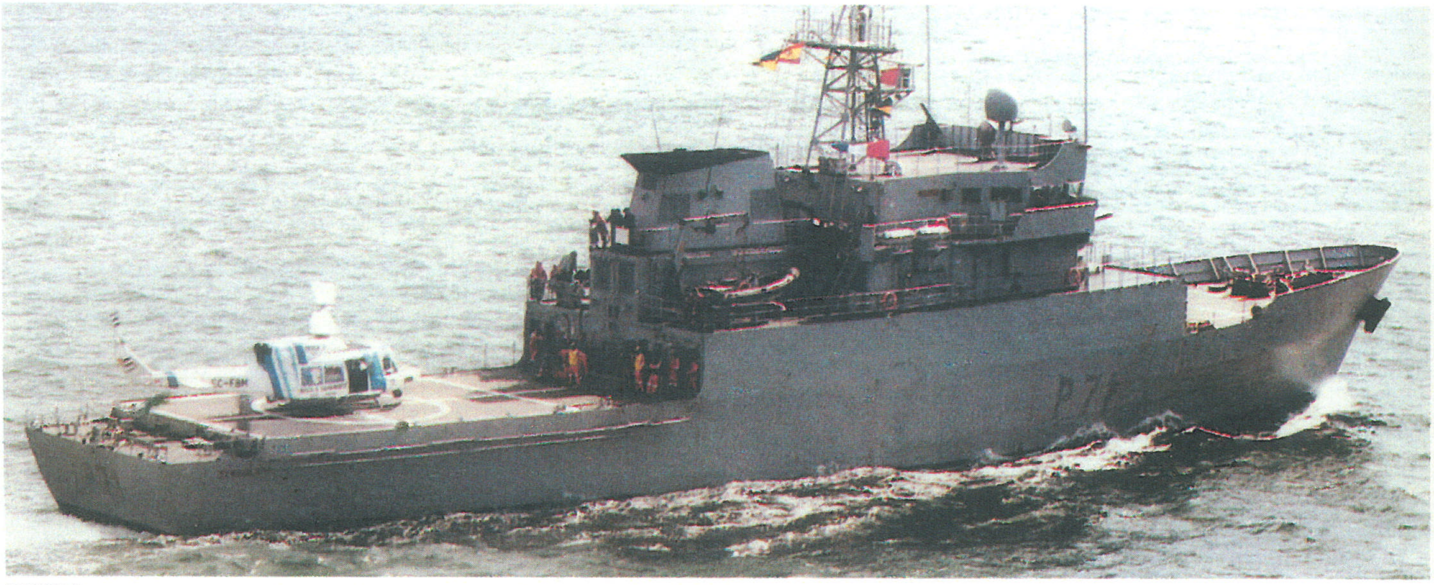


SERVIOLA *10/2001, Adolfo Ortigueira Gil* / 0132008

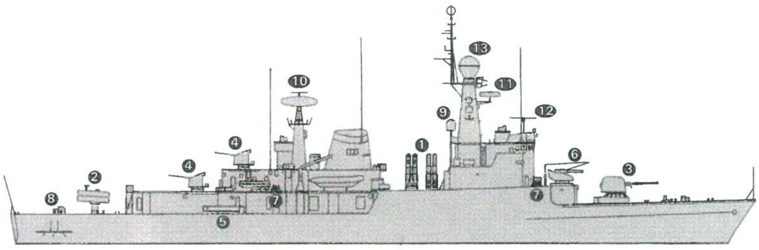
6 DESCUBIERTA CLASS (PSOH/MCS/FSGM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
DESCUBIERTA	P 75 (ex-F 31)	Bazán, Cartagena	16 Nov 1974	8 July 1975	18 Nov 1978
DIANA	M 11 (ex-F 32)	Bazán, Cartagena	8 July 1975	26 Jan 1976	30 June 1979
INFANTA ELENA	F 33	Bazán, Cartagena	26 Jan 1976	14 Sep 1976	12 Apr 1980
INFANTA CRISTINA	P 77 (ex-F 34)	Bazán, Cartagena	11 Sep 1976	25 Apr 1977	24 Nov 1980
CAZADORA	P 78 (ex-F 35)	Bazán, Ferrol	14 Dec 1977	17 Oct 1978	20 July 1982
VENCEDORA	P 79 (ex-F 36)	Bazán, Ferrol	1 June 1978	27 Apr 1979	18 Mar 1983

Displacement, tons: 1,233 standard; 1,666 full load
Dimensions, feet (metres): 291.3 × 34 × 12.5 *(88.8 × 10.4 × 3.8)*
Main machinery: 4 MTU-Bazán 16V 956 TB91 diesels; 15,000 hp(m) *(11 MW)* sustained; 2 shafts; cp props
Speed, knots: 25. **Range, miles:** 4,000 at 18 kt; 7,500 at 12 kt
Complement: 118 (10 officers) plus 30 marines

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ❶ (F 33) ; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg. Normally only 2 pairs are embarked.
SAM: Selenia Albatros octuple launcher ❷ (F 33); 24 Raytheon Sea Sparrow/Selenia Aspide; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; height envelope 15-5,000 m *(49.2-16,405 ft)*; warhead 39 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact ❸; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
1 or 2 Bofors 40 mm/70 ❹ (F 33); 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
2 Oerlikon 20 mm (P 75, P 77, P 78, P 79 and M 11).
Torpedoes: 6—324 mm US Mk 32 (2 triple) tubes ❺ (F 33). Honeywell/Alliant Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
A/S mortars: 1 Bofors 375 mm twin-barrelled trainable ❻ (F 33-F 36); automatic loading; range 3,600 m.
Countermeasures: Decoys: 4 Loral Hycor SRBOC 6-barrelled Mk 36 for chaff and IR flares ❼ (F 33).
Acoustic decoys ❽.
ESM: Elsag Mk 1000 (part of Deneb system); or Mk 1600; intercept.
ECM: Ceselsa Canopus; or Mk 1900; jammer.
Combat data systems: Tritan IV; Link 11 (F 33). Saturn SATCOM ❾.
Weapons control: Signaal WM25; GM 101.
Radars: Air/surface search: Signaal DA05/2 ❿ (F 33); E/F-band; range 137 km *(75 n miles)* for 2 m^2 target.
Surface search: Signaal ZW06 ⓫ (F 33); I-band.
Navigation: 2 Furuno ⓬; I-band.
Fire control: Signaal WM22/41 or WM25 system (F 33) ⓭; I/J-band; range 46 km *(25 n miles)*.
Sonars: Raytheon 1160B (F 33); hull-mounted; active search and attack; medium frequency.

Programmes: Officially rated as Corvettes. *Diana* (tenth of the name) originates with the galley *Diana* of 1570. *Infanta Elena* and *Infanta Cristina* are named after the daughters of King Juan Carlos. Approval for second four ships given on 21 May 1976. First four ordered 7 December 1973 (83 per cent Spanish ship construction components) and two more from Bazán, Ferrol on 25 May 1976.
Modernisation: SRBOC chaff launchers fitted and EW equipment updated. Link 11 added. WM25 fire-control system updated in last four of the class. Tritan command data system has replaced SEWACO.
Structure: Original Portuguese 'João Coutinho' design by Comodoro de Oliveira PN developed by Blohm + Voss and considerably modified by Bazán including use of Y-shaped funnel. Harpoon fitted between bridge and funnel. Noise reduction measures include Masker fitted to shafts, propellers (five types tested) under trial for four years, auxiliary gas-turbine generator fitted on upper deck for use during passive sonar search, all main and auxiliary diesels sound-mounted. Fully stabilised. Automatic computerised engine and alternator control; two independent engine rooms; normal running on two diesels.



INFANTA ELENA *(Scale 1 : 900), Ian Sturton* / 0130393

DIANA *5/2003*, Giorgio Ghiglione* / 0570973

DESCUBIERTA *6/2000, A Sharma* / 0088757

Operational: P 75 completed conversion to an OPV, with capability to act as helicopter platform, in 2000. Most major weapon systems removed. M 11 completed conversion to MCMV support role in 2000 and based at Cartagena. P 79 converted to OPV role in 2003 and P 77 and P 78 in 2004. F 33 to be converted in 2005. P 75 and P 77 based at Cartagena and P 78 and P 79 at Las Palmas.
Sales: F 37 and F 38 sold to Egypt prior to completion. One to Morocco in 1983.

UPDATED

INFANTA ELENA *7/2003*, Diego Quevedo* / 0570972

1 PESCALONSO CLASS (OFFSHORE PATROL CRAFT) (PSO)

Name	*No*	*Builders*	*Commissioned*
CHILREU (ex-*Pescalonso 2*)	P 61	Gijon, Asturias	30 Mar 1992

Displacement, tons: 2,101 full load
Dimensions, feet (metres): 222.4 × 36.1 × 15.4 *(67.8 × 11 × 4.7)*
Main machinery: 1 MaK 6M-453K diesel; 2,460 hp(m) *(1.81 MW)* sustained; 1 shaft; cp prop
Speed, knots: 12. **Range, miles:** 1,500 at 12 kt
Complement: 35 (7 officers)
Guns: 1—12.7 mm MG.
Radars: Surface search: 2 Consilium Selesmar; E/F/I-band.

Comment: Launched 2 May 1988 and purchased by the Fisheries Department for the Navy to use as a Fishery Protection vessel based at Ferrol. Former stern ramp trawler. Inmarsat fitted.

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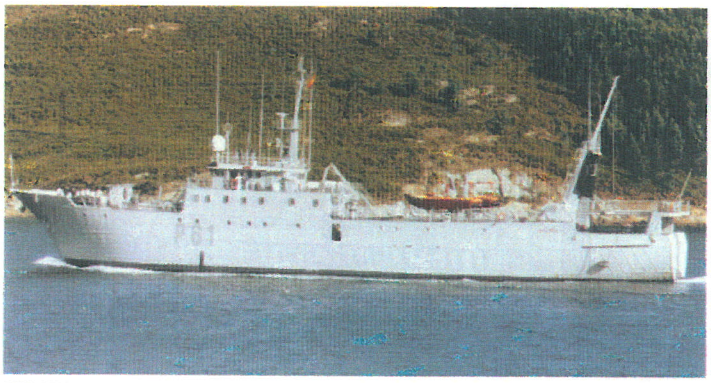

CHILREU *6/2003*, Spanish Navy* / 0570980

3 ALBORAN CLASS (OFFSHORE PATROL CRAFT) (PSOH)

Name	*No*	*Builders*	*Commissioned*
ALBORAN	P 62	Freire, Vigo	8 Jan 1997
ARNOMENDI	P 63	Freire, Vigo	13 Dec 2000
TARIFA	P 64	Freire, Vigo	May 2004

Displacement, tons: 1,963 full load
Dimensions, feet (metres): 218.2 × 36.1 × 14.4 *(66.5 × 11 × 4.4)*
Main machinery: 1 Krupp MaK 6 M 453C diesel; 2,400 hp(m) *(1.76 MW)* sustained (P 62); 1 Krupp MaK 8M25 diesel; 3,250 hp(m) *(2.39 MW)* sustained (P 63); 1 diesel generator and motor for emergency propulsion; 462 hp(m) *(340 kW)*; 1 shaft; bow thruster; 350 hp(m) *(257 kW)*
Speed, knots: 13 (P 62); 15.8 (P 63) (3.5 on emergency motor).
Range, miles: 20,000 at 13 kt
Complement: 37 (7 officers) plus 9 spare
Guns: 2—12.7 mm MGs.
Radars: Surface search: Furuno FAR-2825; I-band.
Navigation: Furuno FR-2130S; I-band.
Helicopters: Platform for 1 light.

Comment: *Alboran* launched in 1991 and purchased by the Fisheries Department to use as a Fishery Protection vessel based at Cartagena. *Arnomendi*, with a slightly larger bridge and more powerful engine, based at Las Palmas, Canary Islands. Construction of *Tarifa*, started in December 2002.

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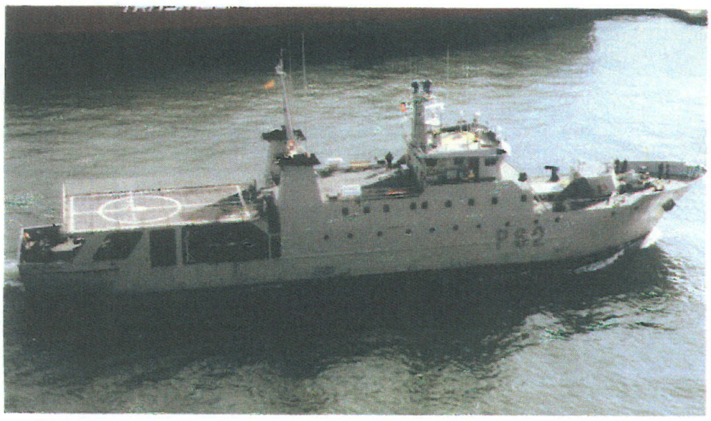

ALBORAN *12/2002*, A Campanera i Rovira* / 0570945

6 BARCELÓ CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
BARCELÓ	P 11	Lürssen, Vegesack	20 Mar 1976
LAYA	P 12	Bazán, La Carraca	23 Dec 1976
JAVIER QUIROGA	P 13	Bazán, La Carraca	4 Apr 1977
ORDÓÑEZ	P 14	Bazán, La Carraca	7 June 1977
ACEVEDO	P 15	Bazán, La Carraca	14 July 1977
CÁNDIDO PÉREZ	P 16	Bazán, La Carraca	25 Nov 1977

Displacement, tons: 145 full load
Dimensions, feet (metres): 118.7 × 19 × 6.2 *(36.2 × 5.8 × 1.9)*
Main machinery: 2 MTU-Bazán MD 16V 538 TB90 diesels; 6,000 hp(m) *(4.41 MW)* sustained; 2 shafts
Speed, knots: 22. **Range, miles:** 1,200 at 17 kt
Complement: 19 ([illegible] officers)
Guns: 1 Breda 40 mm/70. 1 Oerlikon 20 mm/85. 2—12.7 mm MGs.
Torpedoes: Fitted for 2—21 in *(533 mm)* tubes.
Weapons control: CSEE optical director.
Radars: Surface search: Raytheon 1220/6XB; I/J-band.

Comment: Ordered 5 December 1973. All manned by the Navy although building cost was borne by the Ministry of Commerce. Of Lürssen TNC 36 design. Reported as able to take two or four surface-to-surface missiles instead of 20 mm gun and torpedo tubes. Plans to transfer to the Guardia Civil del Mar have been shelved. Speed much reduced from original 36 kt.

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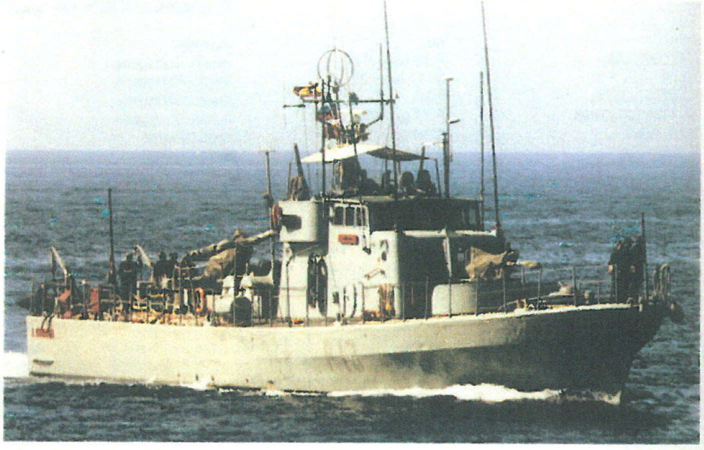

JAVIER QUIROGA *5/2003*, Diego Quevedo* / 0570960

10 ANAGA CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
ANAGA	P 21	Bazán, La Carraca	14 Oct 1980
TAGOMAGO	P 22	Bazán, La Carraca	30 Jan 1981
MAROLA	P 23	Bazán, La Carraca	4 June 1981
MOURO	P 24	Bazán, La Carraca	14 July 1981
GROSA	P 25	Bazán, La Carraca	15 Sep 1981
MEDAS	P 26	Bazán, La Carraca	16 Oct 1981
IZARO	P 27	Bazán, La Carraca	9 Dec 1981
TABARCA	P 28	Bazán, La Carraca	30 Dec 1981
DEVA	P 29	Bazán, La Carraca	3 June 1982
BERGANTÍN	P 30	Bazán, La Carraca	28 July 1982

Displacement, tons: 319 full load
Dimensions, feet (metres): 145.6 × 21.6 × 8.2 *(44.4 × 6.6 × 2.5)*
Main machinery: 1 MTU-Bazán 16V 956 SB90 diesel; 4,000 hp(m) *(2.94 MW)* sustained; 1 shaft; cp prop
Speed, knots: 16. **Range, miles:** 4,000 at 13 kt
Complement: 25 (3 officers)
Guns: 1 FMC 3 in *(76 mm)*/50 Mk 22. 1 Oerlikon 20 mm Mk 10. 2—7.62 mm MGs.
Radars: Surface search: 1 Racal Decca 1226; I-band.
Navigation: Consilium Selesmar SRL MM 950; F/I-band.

Comment: Ordered from Bazán, Cádiz on 22 July 1978. For fishery and EEZ patrol duties. Rescue and firefighting capability. Speed reduced from original 20 kt.

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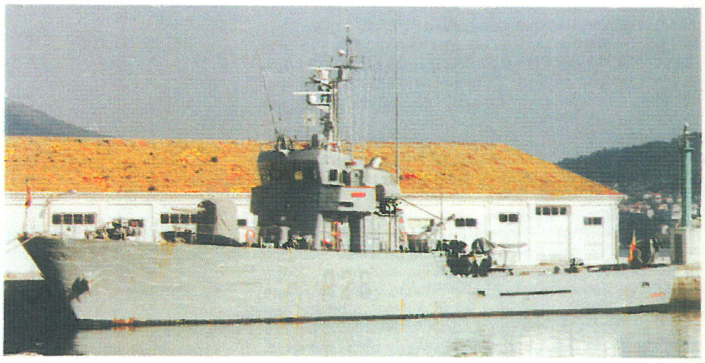

TABARCA *2/2002, Diego Quevedo* / 0528931

4 CONEJERA CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
CONEJERA	P 31	Bazán, Ferrol	31 Dec 1981
DRAGONERA	P 32	Bazán, Ferrol	31 Dec 1981
ESPALMADOR	P 33	Bazán, Ferrol	10 May 1982
ALCANADA	P 34	Bazán, Ferrol	10 May 1982

Displacement, tons: 85 full load
Dimensions, feet (metres): 106.6 × 17.4 × 4.6 *(32.2 × 5.3 × 1.4)*
Main machinery: 2 MTU-Bazán MA 16V 362 SB80 diesels; 2,450 hp(m) *(1.8 MW)*; 2 shafts
Speed, knots: 13. **Range, miles:** 1,200 at 13 kt
Complement: 12
Guns: 1 Oerlikon 20 mm/120 Mk 10. 1—12.7 mm MG.
Radars: Surface search: Furuno; I-band.

Comment: Ordered in 1978, funded jointly by the Navy and the Ministry of Commerce. Naval manned. Speed reduced from original 25 kt.

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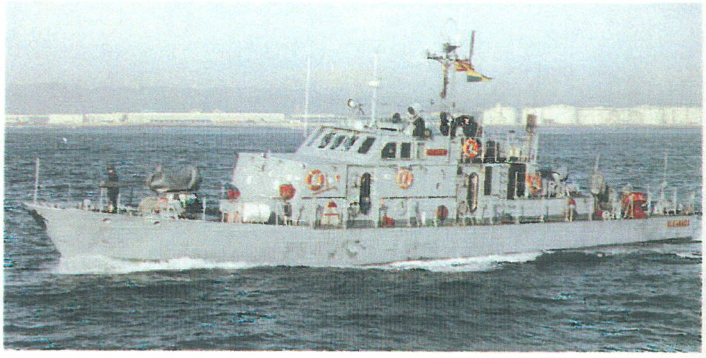

ALCANADA *7/2003*, A Campanera i Rovira* / 0570944

2 TORALLA CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
TORALLA	P 81	Viudes, Barcelona	29 Apr 1987
FORMENTOR	P 82	Viudes, Barcelona	23 June 1988

Displacement, tons: 102 full load
Dimensions, feet (metres): 93.5 × 21.3 × 5.9 *(28.5 × 6.5 × 1.8)*
Main machinery: 2 MTU-Bazán 8V 396 TB93 diesels; 2,100 hp(m) *(1.54 MW)* sustained; 2 shafts
Speed, knots: 19. **Range, miles:** 1,000 at 12 kt
Complement: 13
Guns: 1 Browning 12.7 mm MG.
Radars: Surface search: Racal Decca RM 1070; I-band.
Navigation: Racal Decca RM 270; I-band.

Comment: Wooden hull with GRP sheath. Very similar to Customs 'Alcaravan' class. *Formentor* refitted in 1996-97. Based at Cartagena.

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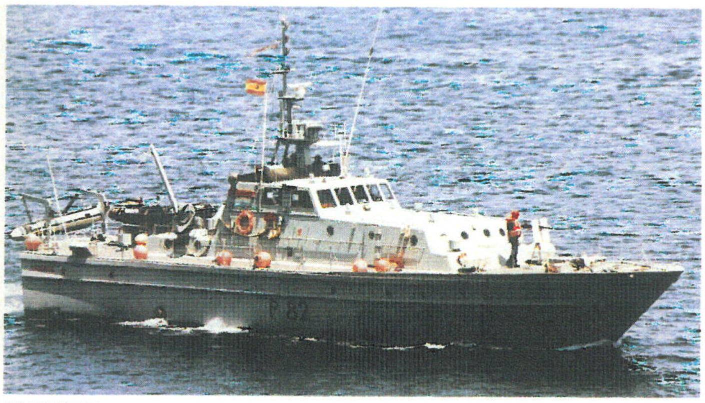

FORMENTOR *6/2003*, Diego Quevedo* / 0570961

2 P 101 CLASS (PBR)

P 114 **P 111**

Displacement, tons: 18.5 standard; 20.8 full load
Dimensions, feet (metres): 44.9 × 14.4 × 4.3 *(13.7 × 4.4 × 1.3)*
Main machinery: 2 Baudouin-Interdiesel DNP-350; 768 hp(m) *(564 kW)*; 2 shafts
Speed, knots: 23.3. **Range, miles:** 430 at 18 kt
Complement: 6
Guns: 1—12.7 mm MG.
Radars: Surface search: Decca 110; I-band.

Comment: Ordered under the programme agreed 13 May 1977, funded jointly by the Navy and the Ministry of Commerce. Built to the Aresa LVC 160 design by Aresa, Arenys de Mar, Barcelona. GRP hull. Eight of the class conduct harbour auxiliary duties with Y numbers, the remainder paid off in 1993. P 111 transferred back again to patrol duties in 1996 and is based at Ayamonte (Huelva). P 114 is also used for patrol duties and is based at Ceuta.

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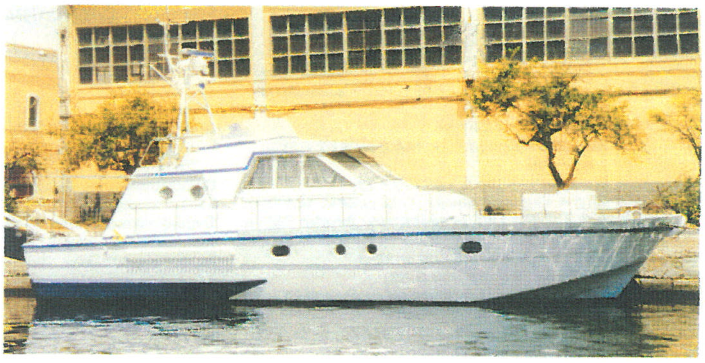

P 101 class *6/2000, Adolfo Ortigueira Gil* / 0087858

1 INSHORE/RIVER PATROL LAUNCH (PBR)

Name	*No*	*Builders*	*Commissioned*
CABO FRADERA	P 201	Bazán, La Carraca	11 Jan 1963

Displacement, tons: 21 full load
Dimensions, feet (metres): 58.3 × 13.8 × 3 *(17.8 × 4.2 × 0.9)*
Main machinery: 2 diesels; 280 hp(m) *(206 kW)*; 2 shafts
Speed, knots: 11
Complement: 9
Guns: 1—7.62 mm MG.
Radars: Surface search: Furuno; I-band.

Comment: Based at Tuy on River Miño for border patrol with Portugal.

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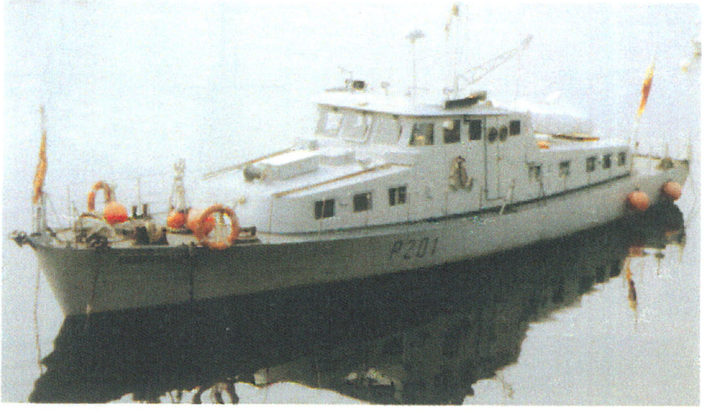

CABO FRADERA *4/2003*, Camil Busquets i Vilanova* / 0570981

AMPHIBIOUS FORCES

2 NEWPORT CLASS (LSTH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HERNÁN CORTÉS (ex-*Barnstable County*)	L 41 (ex-L 1197)	National Steel, San Diego	19 Dec 1970	2 Oct 1971	27 May 1972
PIZARRO (ex-*Harlan County*)	L 42 (ex-L 1196)	National Steel, San Diego	7 Nov 1970	24 July 1971	8 Apr 1972

Displacement, tons: 4,975 light; 8,550 full load
Dimensions, feet (metres): 522.3 (hull) × 69.5 × 18.2 (aft) *(159.2 × 21.2 × 5.5)*
Main machinery: 6 Alco 16-251 diesels; 16,500 hp *(12.3 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 20. **Range, miles:** 14,250 at 14 kt
Complement: 255 (15 officers)
Military lift: 374 troops; (20 officers) 500 tons vehicles; 2 LCVPs and 2 LCPLs on davits

Guns: 1 General Electric/General Dynamics 20 mm Vulcan Phalanx Mk 15. 2 Oerlikon 20 mm/85. 4—12.7 mm MGs.
Countermeasures: ESM: Celesa Deneb.

Radars: Surface search: Raytheon SPS-10F/67; G-band.
Navigation: Marconi LN66; I-band.

Helicopters: Platform only for 3 AB 212.

Programmes: First one transferred from the USA and recommissioned 26 August 1994, the second one transferred 14 April 1995. Leases have been renewed.
Structure: The 3 in guns removed on transfer. The ramp is supported by twin derrick arms. A ramp just forward of the superstructure connects the lower tank deck with the main deck and a vehicle passage through the superstructure provides access to the parking area amidships. A stern gate to the tank deck permits unloading of amphibious tractors into the water, or unloading of other vehicles into an LCU or on to a pier. Vehicle stowage covers 19,000 sq ft. Length over derrick arms is 562 ft *(171.3 m)*; full load draught is 11.5 ft forward and 17.5 ft aft. Bow thruster fitted to hold position offshore while unloading amphibious tractors. Meroka may replace Phalanx or be fitted on the former 3 in gun platform. SCOT 3 SATCOM fitted in 1995-96. Can carry four Mexeflotes, two of them powered.
Operational: Based at Rota. Both to be replaced in 2008 by the Strategic Projection Ship.

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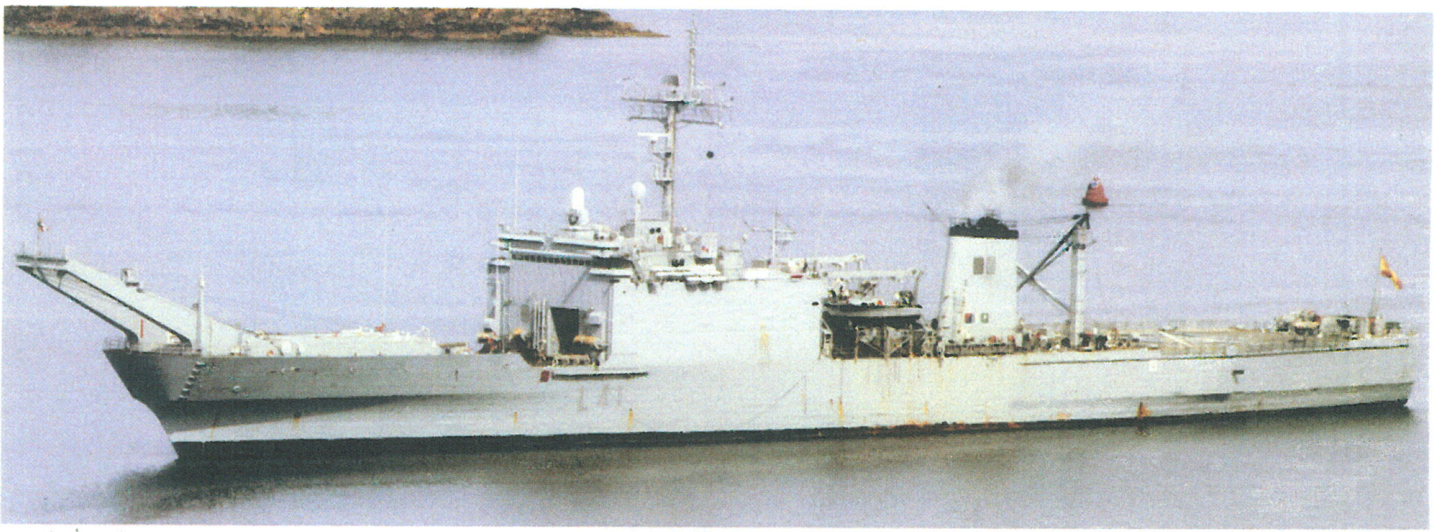

HERNÁN CORTÉS *7/2003*, B Sullivan* / 0570977

2 GALICIA CLASS (LPD)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
GALICIA	L 51	Bazán, Ferrol	31 May 1996	21 July 1997	30 Apr 1998
CASTILLA	L 52	Bazán, Ferrol	11 Dec 1997	14 June 1999	26 June 2000

Displacement, tons: 13,815 full load
Dimensions, feet (metres): 524.9 oa; 465.9 pp × 82 × 19.3 *(160; 142 × 25 × 5.9)*
Flight deck, feet (metres): 196.9 × 82 *(60 × 25)*
Main machinery: 2 Bazán/Caterpillar 3612 diesels; 12,512 hp (m) *(9.2 MW)*; 2 shafts; LIPS cp props; bow thruster 680 hp (m) *(500 kW)*
Speed, knots: 20. **Range, miles:** 6,000 at 12 kt
Complement: 115 plus 12 spare; 189 (L 52)
Military lift: 543 or 404 (L 52) fully equipped troops and 72 (staff and aircrew)
6 LCVP or 4 LCM or 1 LCU and 1 LCVP. 130 APCs or 33 MBTs.

Guns: 1 Bazán 20 mm/120 12-barrelled Meroka (fitted for) ❶; 3,600 rds/min combined to 2 km. 2 Oerlikon GAM-B01 20 mm.
Countermeasures: Decoys: 4 SRBOC chaff launchers.
ESM: Intercept.
Combat data systems: SICOA (L 52); SATCOM; Link 11.
Radars: Surface search: TRS 3D/16 (L 52) ❷; G-band.
Surface search: Kelvin Hughes ARPA ❸; I-band.
Navigation and helo control: I-band.

Helicopters: 6 AB 212 or 4 SH-3D Sea King ❹ or 4 Eurocopter Tiger.

Programmes: Originally started as a national project by the Netherlands. In 1990 the ATS was seen as a possible solution to fulfil the requirements for a new LPD. Joint project definition study announced in July 1991 and completed in December 1993 and the first ship was authorised on 29 July 1994. The second of class ordered 9 May 1997.
Modernisation: L 52 C^2 capabilities upgraded in 2002-03 to support Flagship requirements. L 52 embarked the HQ of the Spanish High Readiness Force (Maritime) in November 2003 as part of the NATO Response Force. Both ships are to be fitted with RAM CIWS.
Structure: Able to transport a fully equipped battalion of marines providing a built-in dock for landing craft and a helicopter flight deck for debarkation in offshore conditions. Docking well is 885 m^2; vehicle area 1,010 m^2. Access hatch on the starboard side. Hospital facilities. Built to commercial standards with military command and control and NBCD facilities. *Castilla* has improved command and control facilities with two operations centres, one for amphibious and one for a combat group.
Operational: Alternatively can also be used for a general logistic support for both military and civil operations, including environmental and disaster relief tasks. Based at Rota.
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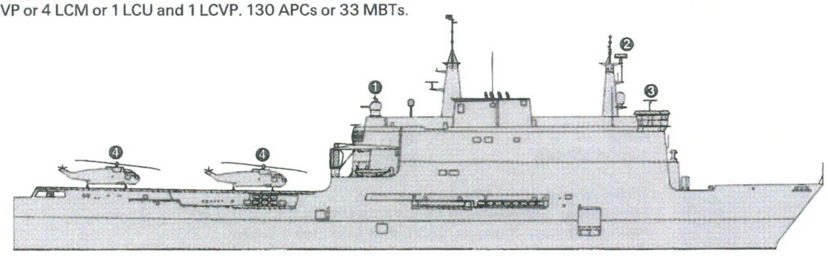
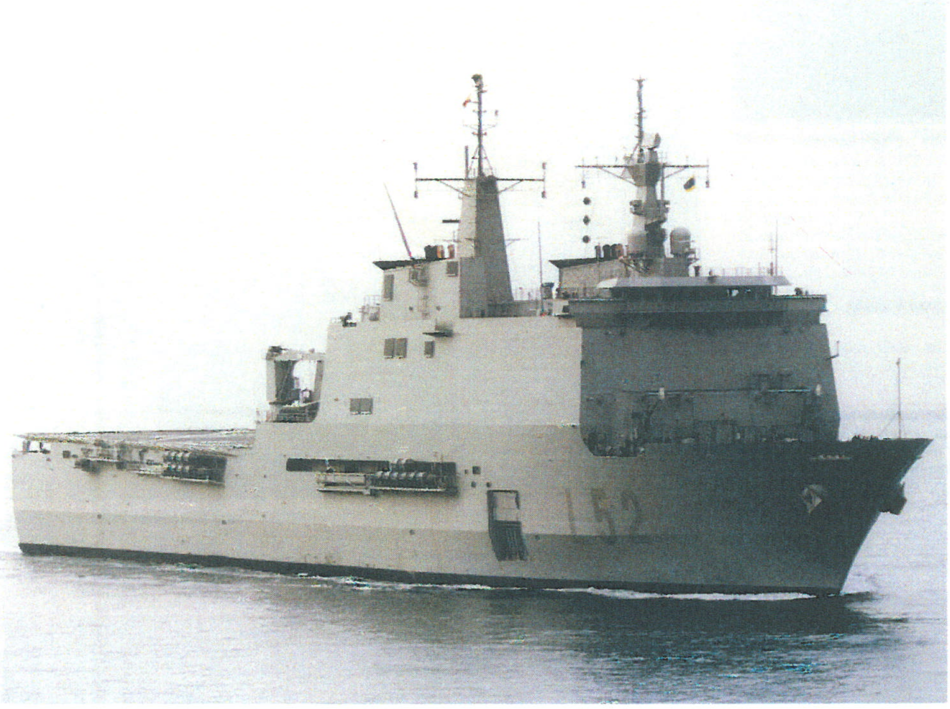
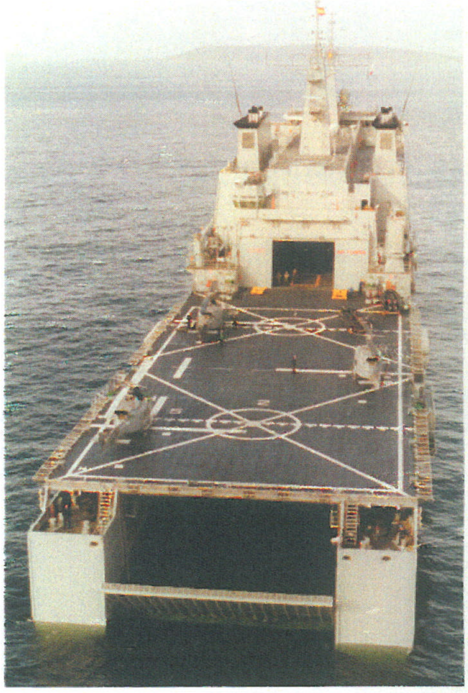


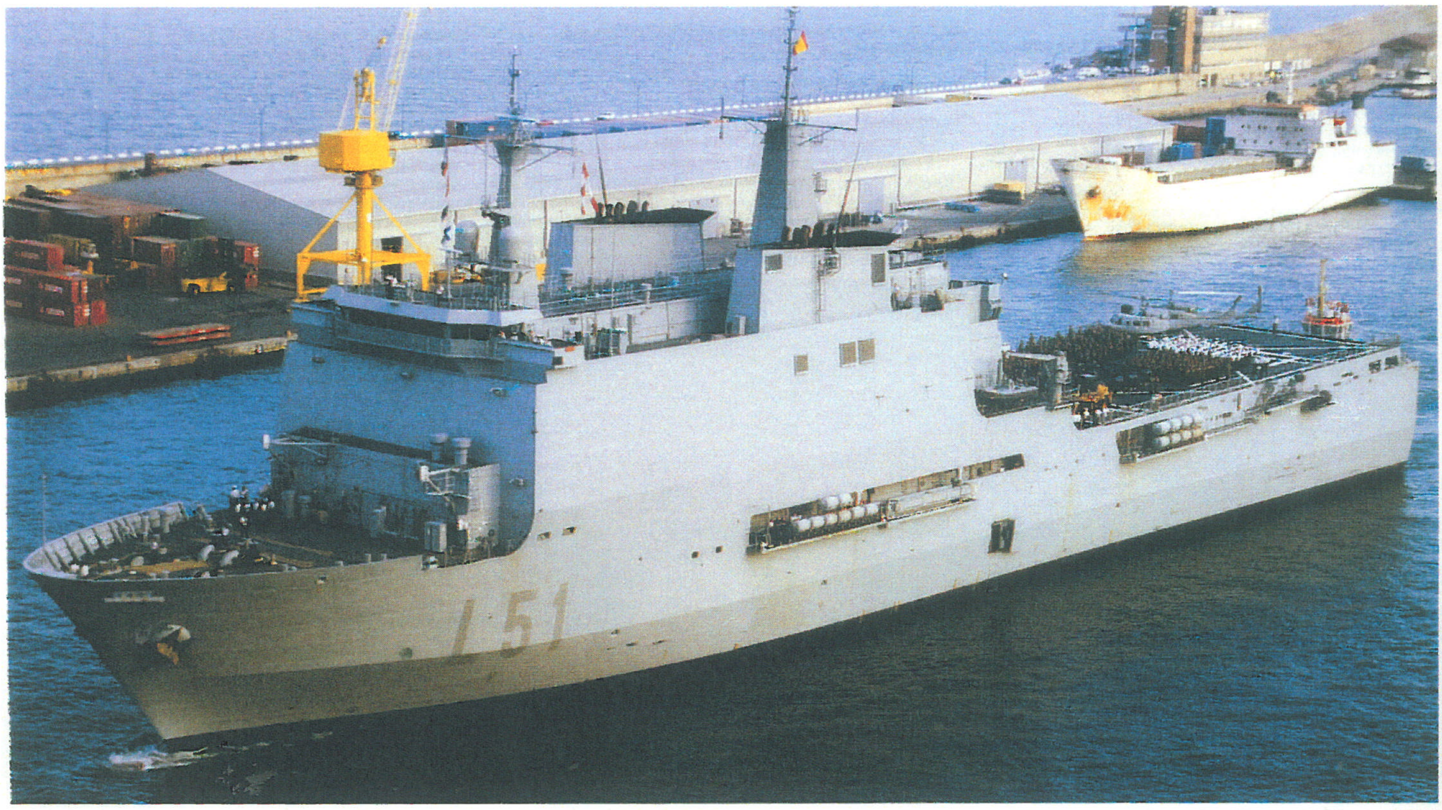
CASTILLA *(Scale 1 : 1,500), Ian Sturton* / 0106549



CASTILLA (without guns) *3/2001, Diego Quevedo* / 0130138

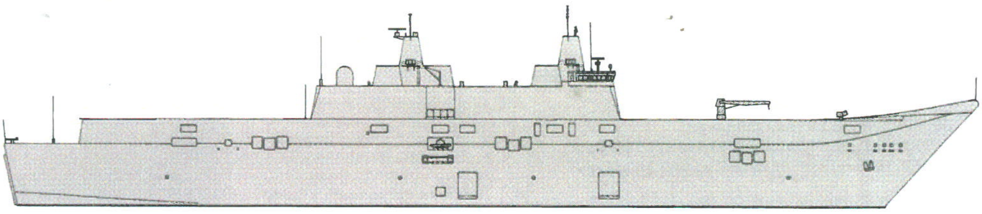


GALICIA *1/2002, Adolfo Ortigueira Gil* / 0528928



GALICIA (without main radar and guns) *5/2000, Camil Busquets i Vilanova* / 0130137

0 + (1) STRATEGIC PROJECTION SHIP (LHD)



STRATEGIC PROJECTION SHIP *(Scale 1 : 1,800), Ian Sturton* / 0569926

Displacement, tons: 27,082 full load
Dimensions, feet (metres): 757.4 × 105.0 × 23.0 *(230.8 × 32.0 × 7.0)*
Flight deck, feet (metres): 663.9 × 105.0 *(202.3 × 32)*
Main machinery: Diesel-electric; 4 diesels; 35,000 hp *(26 MW)*; 2 podded propulsors
Speed, knots: 21. **Range, miles:** 9,000 at 15 kt
Complement: 243 (plus 1,220 including flag staff, air group and 900 landing force)
Helicopters: Landing spots for 8 AB 212, 8 Eurocopter Tiger, 6 NH 90 or 4 CH-47 Chinook.

Programmes: Approval for the procurement of a Strategic Projection Ship was given by the Spanish Cabinet on 5 September 2003. Construction is expected to start in 2004 following a formal contract. Delivery is to be in 2008.

Structure: The hangar (1,000 m²) is to be capable of accomodating 11 NH 90s or 12 AB 212s. Below the hangar, there is to be a 2,000 m² 'garage' to accommodate vehicles (including main battle tanks), provisions or containers. The landing dock (69.3 × 16 m) will be capable of operating four LCM-8 landing craft or at least one landing craft air cushion. Medical facilities will include operating rooms, intensive care unit and sick bay.

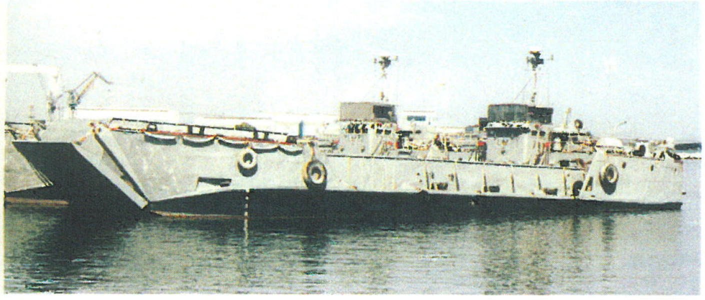
Operational: The principal roles are amphibious, strategic projection of land forces and disaster relief. The ship will also be capable of operating the fixed-wing aircraft of *Príncipe de Asturias*.
UPDATED

1 LCU

L 072 (ex-*LCU 12*, ex-*LCU 2*, ex-*LCU 1491*)

Displacement, tons: 360 full load
Dimensions, feet (metres): 119.7 × 31.5 × 5.2 *(36.5 × 9.6 × 1.6)*
Main machinery: 3 Gray Marine 64 YTL diesels; 675 hp *(504 kW)*; 3 shafts
Speed, knots: 8
Complement: 14
Military lift: 160 tons
Radars: Navigation: Furuno; I-band.

Comment: Transferred from US June 1972. Purchased August 1976. Refitted 1993-94. Based at Puntales (Cadiz).
UPDATED



LCU *4/1999, Diego Quevedo* / 0080627

7 LCM 8

L 81-86 (ex-*LCM 81-86*, ex-*E 81-86*) **L 87**

Displacement, tons: 115-120 full load
Dimensions, feet (metres): 74.5 × 21.7 × 5.9 *(22.7 × 6.6 × 1.8)*
Main machinery: 4 GM 6-71 diesels; 696 hp *(519 kW)* sustained; 2 shafts
Speed, knots: 11
Complement: 5

Comment: First six ordered from Oxnard, California in 1974. Assembled in Spain. Commissioned in June-September 1975. Two more built by Bazán, San Fernando, and completed in April 1989. *L 88* decomissioned 2003. Based at Puntales (Cadiz).
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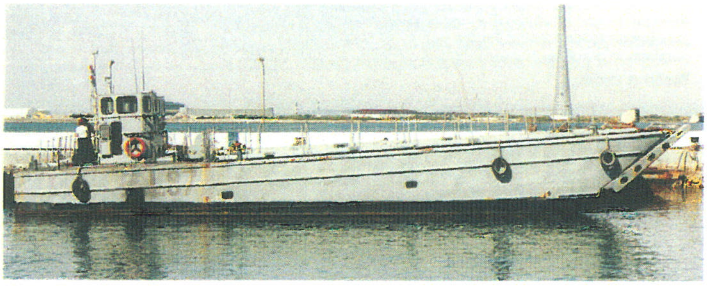

L 87 *4/1999, Diego Quevedo* / 0080628

40 LANDING CRAFT

Comment: Apart from those used for divers there are 14 LCM 6 *(L 161-167, L 261-267)*, 16 LCVP and 8 LCPL. All of the LCM 6, eight of the LCVPs and most of the LCPs were built in Spanish Shipyards 1986-88. There are also two tug pontoons (mexeflotes) *(L 91-L 92)* completed in 1995. Most of these craft are laid up.
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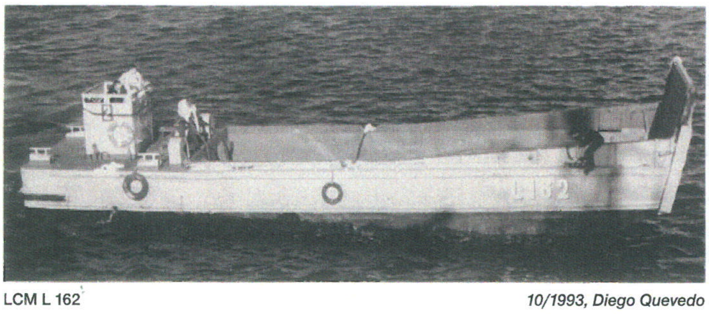

LCM L 162 *10/1993, Diego Quevedo*

2 + (10) LCM (1E)

L 601-602

Displacement, tons: 108 full load
Dimensions, feet (metres): 76.5 × 21 × 3.4 *(23.3 × 6.4 × 1.1)*
Main machinery: 2 MAN-D 2842-LE 402 diesels; 2,200 hp(m) *(1.62 MW)*; 2 MJP-650 DD waterjets
Speed, knots: 14. **Range, miles:** 160 at 12 kt
Complement: 3
Military lift: 100 tons

Comment: Built by IZAR, San Fernando, for LPDs and delivered in early 2001. Bow and stern ramps. Steel construction with wheelhouse of composites. Maximum speed in ballast is 22 kt. Further orders, to replace LCM 8, are expected. These are likely to include modifications to meet Strategic Projection Ship requirements. Both based at Puntales.
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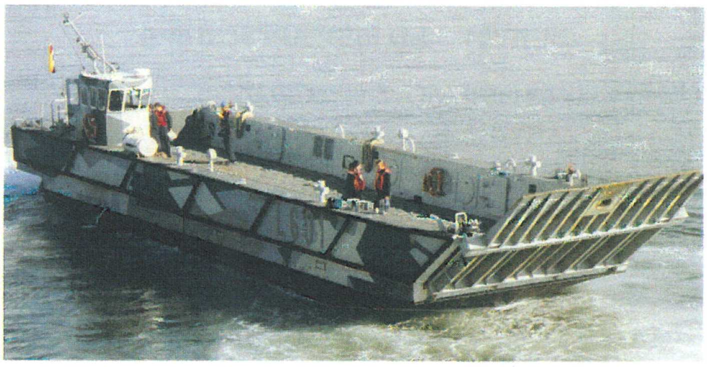


L 601 *11/2002*, A Campanera i Rovira* / 0570942

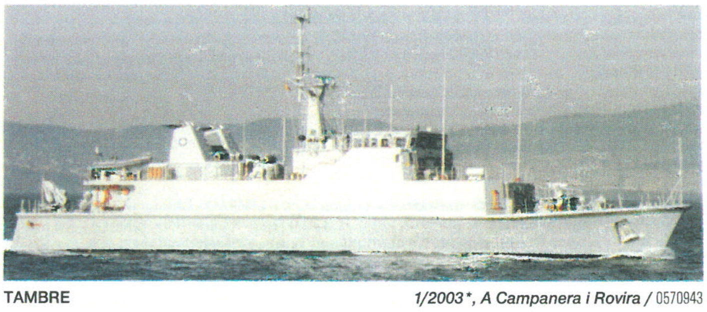
MINE WARFARE FORCES

4 + 2 (2) SEGURA CLASS (MINEHUNTERS) (MHC)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SEGURA	M 31	Bazán, Cartagena	25 July 1997	27 Apr 1999
SELLA	M 32	Bazán, Cartagena	6 July 1998	28 May 1999
TAMBRE	M 33	Bazán, Cartagena	5 Mar 1999	18 Feb 2000
TURIA	M 34	Bazán, Cartagena	22 Nov 1999	16 Oct 2000
DUERO	M 35	Izar, Cartagena	28 April 2003	2004
TAJO	M 36	Izar, Cartagena	2004	2005

Displacement, tons: 530 full load
Dimensions, feet (metres): 177.2 oa; 167.3 wl × 35.1 × 7.2 *(54; 51 × 10.7 × 2.2)*
Main machinery: 2 MTU-Bazán 6V 396 TB83 diesels; 1,523 hp(m) *(1.12 MW)*; 2 motors (for hunting); 200 kW; 2 Voith Schneider props; 2 side thrusters; 150 hp(m) *(110 kW)*
Speed, knots: 14; 7 (hunting). **Range, miles:** 2,000 at 12 kt
Complement: 41 (7 officers)
Guns: 1 Bazán/Oerlikon 20 mm GAM-BO1.
Countermeasures: MCM: FABA/Inisel system. 2 Gayrobot Pluto Plus ROVs.
Combat data systems: FABA/SMYC Nautis.
Radars: Navigation: Kelvin-Hughes 1007; I-band.
Sonars: Raytheon/ENOSA SQQ-32 multifunction VDS mine detection; high frequency.

Comment: On 4 July 1989 a technology transfer contract was signed with Vosper Thornycroft to allow Bazán to design a new MCM vessel based on the 'Sandown' class. The order for four of the class was authorised on 7 May 1993, and an agreement signed on 26 November 1993 between DCN and Bazán provided for training in GRP technology. The first of class laid down 30 May 1995. Two more ordered on 26 January 2001 with an option for a further two. Sonar includes side scanning, and a towed body tracking and positioning system. M 35 and M 36 are to be fitted with the Minesniper mine disposal system. M 31-34 are likely to be retrofitted in due course. Although a class of 12 was envisaged, higher priority may now be given to a minesweeper programme. Form 1st MCM Squadron based at Cartagena.
UPDATED



TAMBRE *1/2003*, A Campanera i Rovira* / 0570943

1 MSC 268 CLASS (MINESWEEPER—COASTAL) (MSC)

Name	*No*	*Builders*	*Commissioned*
EBRO (ex-*MSC 269*)	M 22	Bellingham SY	19 Dec 1958

Displacement, tons: 390 full load
Dimensions, feet (metres): 144 × 28 × 8.2 *(43.9 × 8.5 × 2.5)*
Main machinery: 2 GM 8-268A diesels; 880 hp *(656 kW)*; 2 shafts
Speed, knots: 11. **Range, miles:** 2,700 at 9 kt
Complement: 39 (3 officers)
Guns: 1 Oerlikon 20 mm/120 Mk 10.
Radars: Navigation: Decca TM 626 or RM 914; I-band.
Sonars: UQS-1; active minehunting; high frequency.

Comment: Transferred from US. Wooden hulled. Based at Cartagena.

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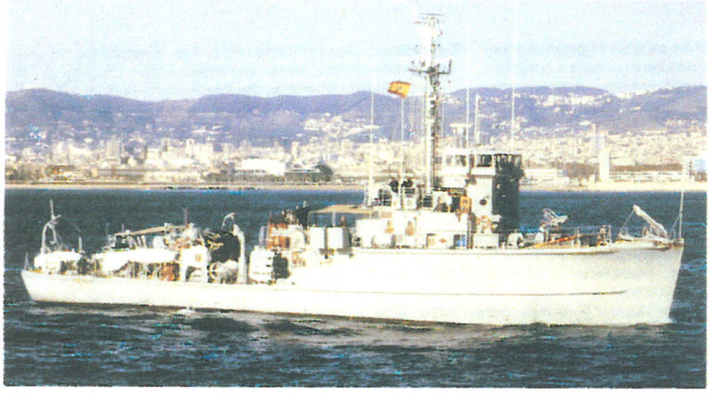

EBRO *11/2002*, Camil Busquets i Vilanova* / 0570962

SURVEY AND RESEARCH SHIPS

1 DARSS CLASS (RESEARCH SHIP) (AGI/AGOR)

Name	*No*	*Builder*	*Commissioned*
ALERTA (ex-*Jasmund*)	A 111	Peenewerft, Wolgast	6 Dec 1992

Displacement, tons: 2,292 full load
Dimensions, feet (metres): 250.3 × 39.7 × 13.8 *(76.3 × 12.1 × 4.2)*
Main machinery: 1 Kolomna Type 40-DM diesel; 2,200 hp(m) *(1.6 MW)* sustained; 1 shaft; cp prop
Speed, knots: 11. **Range, miles:** 1,000 at 11 kt
Complement: 60
Guns: Fitted for 3 twin 25 mm/70. 2—12.7 mm MGs.
Radars: Navigation: Racal Decca; I-band.

Comment: Former GDR depot ship launched on 27 February 1982 and converted to an AGI, with additional accommodation replacing much of the storage capacity. Was to have transferred to Ecuador in 1991 but the sale was cancelled. Commissioned in the Spanish Navy and sailed from Wilhelmshaven for a refit at Las Palmas prior to being based at Cartagena and used as an AGI and equipment trials ship. Saturn 35 SATCOM.

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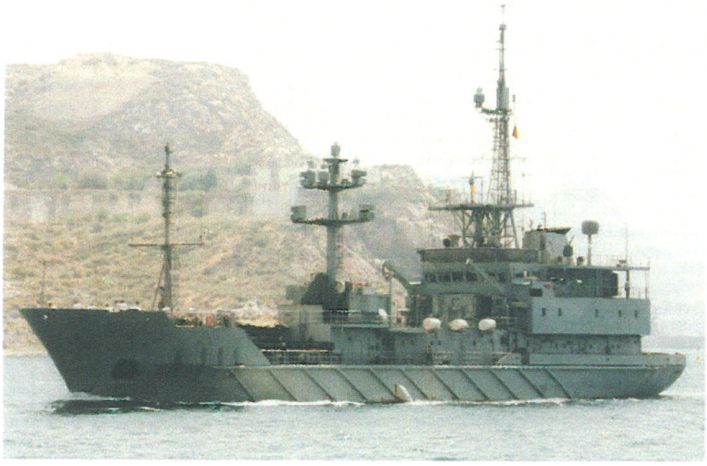

ALERTA *7/2002, Diego Quevedo* / 0528951

1 RESEARCH SHIP (AGOBH)

Name	*No*	*Builders*	*Commissioned*
HESPÉRIDES (ex-*Mar Antártico*)	A 33	Bazán, Cartagena	16 May 1991

Displacement, tons: 2,738 full load
Dimensions, feet (metres): 270.7; 255.2 × 46.9 × 14.8 *(82.5; 77.8 × 14.3 × 4.5)*
Main machinery: Diesel-electric; 4 MAN-Bazán 14V20/27 diesels; 6,860 hp(m) *(5 MW)* sustained; 4 generators; 2 AEG motors; 3,800 hp(m) *(2.8 MW)*; 1 shaft; bow and stern thrusters; 350 hp(m) *(257 kW)* each
Speed, knots: 15. **Range, miles:** 12,000 at 13 kt
Complement: 39 ([illegible] officers) plus 30 scientists
Radars: Surface search: Racal/Hispano ARPA 2690; I-band.
Navigation: Racal 2690 ACS; F-band.
Helicopters: 1 AB 212.

Comment: Ordered in July 1988 from Bazán, Cartagena, by the Ministry of Education and Science. Laid down in 1989, launched 12 March 1990. Has 330 sq m of laboratories, Simbad ice sonar. Dome in keel houses several sensors. Ice-strengthened hull capable of breaking first year ice up to 45 cm at 5 kt. Based at Cartagena, the main task is to support the Spanish base at Livingston Island, Antarctica. Manned and operated by the Navy. Has a telescopic hangar.

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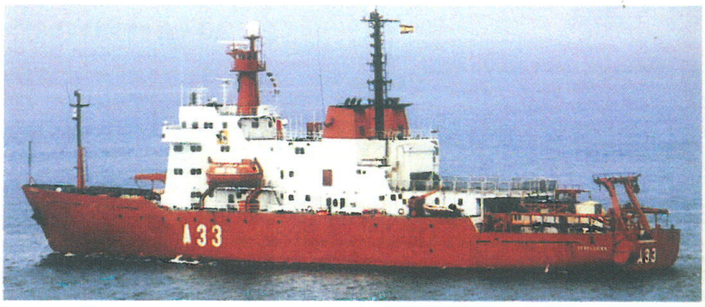

HESPÉRIDES *8/2003*, Diego Quevedo* / 0570954

3 CASTOR CLASS (SURVEY SHIPS) (AGS)

Name	*No*	*Builders*	*Commissioned*
CASTOR	A 21 (ex-H 4)	Bazán, La Carraca	1 Dec 1966
ANTARES	A 23	Bazán, La Carraca	21 Nov 1974
RIGEL	A 24	Bazán, La Carraca	21 Nov 1974

Displacement, tons: 363 full load
Dimensions, feet (metres): 125.9 × 24.9 × 10.2 *(38.4 × 7.6 × 3.1)*
Main machinery: 1 Sulzer 4TD36 diesel; 720 hp(m) *(530 kW)*; 1 shaft
Speed, knots: 11.5. **Range, miles:** 3,620 at 8 kt
Complement: 36 (4 officers)
Radars: Navigation: Raytheon 1620; I/J-band.

Comment: Fitted with Raydist, Omega and digital presentation of data. A 21 has gaps in the gunwhale aft for Oropesa sweep for side scan mapping sonar. In A 23 and 24 this is a full run to the stern. Likely to be decommissioned in the near future. Based at Cadiz.

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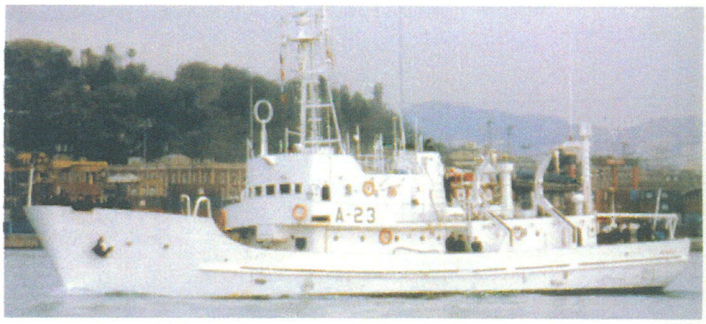

ANTARES *1/2003*, Camil Busquets i Vilanova* / 0570982

2 MALASPINA CLASS (SURVEY SHIPS) (AGS)

Name	*No*	*Builders*	*Commissioned*
MALASPINA	A 31	Bazán, La Carraca	21 Feb 1975
TOFIÑO	A 32	Bazán, La Carraca	23 Apr 1975

Displacement, tons: 820 standard; 1,090 full load
Dimensions, feet (metres): 188.9 × 38.4 × 12.8 *(57.6 × 11.7 × 3.9)*
Main machinery: 2 San Carlos MWM TbRHS-345-61 diesels; 3,600 hp(m) *(2.64 MW)*; 2 shafts; LIPS cp props
Speed, knots: 15. **Range, miles:** 4,000 at 12 kt; 3,140 at 14.5 kt
Complement: 63 (9 officers)
Guns: 2 Oerlikon 20 mm.
Radars: Navigation: Raytheon 1220/6XB; I/J-band.

Comment: Ordered mid-1972. Both named after their immediate predecessors. Developed from British 'Bulldog' class. Fitted with two Atlas DESO-10 AN 1021 (280-1,400 m) echo-sounders, retractable Burnett 538-2 sonar for deep sounding, Egg Mark B side scan sonar, Raydist DR-S navigation system, Hewlett Packard 2100A computer inserted into Magnavox Transit satellite navigation system, active rudder with fixed pitch auxiliary propeller. *Malaspina* used for a NATO evaluation of a Ship's Laser Inertial Navigation System (SLINS) produced by British Aerospace. Based at Cadiz.

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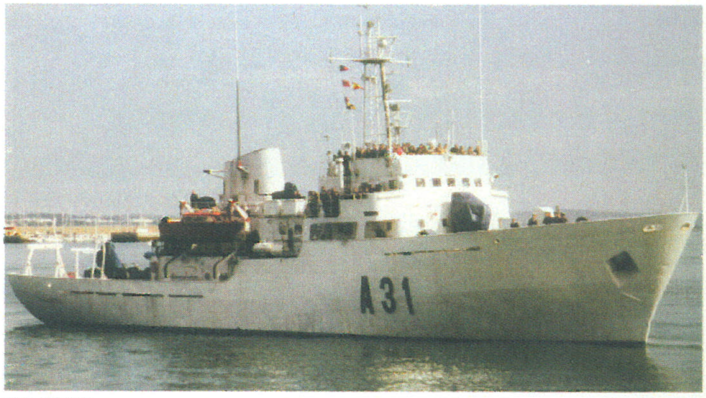

MALASPINA *4/2002, A Campanera i Rovira* / 0528925

2 LHT-130 CLASS (SURVEY MOTOR BOATS) (YGS)

Name	*No*	*Builders*	*Commissioned*
ASTROLABIO	A 91	Rodman, Vigo	30 Nov 2001
ESCANDALLO	A 92	Rodman, Vigo	Mar 2004

Displacement, tons: 8 full load
Dimensions, feet (metres): 41.3 × 13.8 × 1.6 *(12.6 × 4.2 × 0.5)*
Main machinery: 2 diesels; 700 hp *(522 kW)*; 2 shafts
Speed, knots: 30

Comment: Support craft of the Hydrographic Flotilla. Based at Puntales and transportable by road, rail, ship or aircraft.

UPDATED

AUXILIARIES

Note: A new Fleet Replenishment Ship is under development. Similar to the 'Patiño' class, the ship is to have a double hull, capacity for cargo and improved sensors and weapons.

1 PATIÑO CLASS (FLEET LOGISTIC TANKER) (AORH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
PATIÑO	A 14	Bazán, Ferrol	22 June 1994	16 June 1995

Displacement, tons: 5,762 light; 17,045 full load
Dimensions, feet (metres): 544.6 × 72.2 × 26.2 *(166 × 22 × 8)*
Main machinery: 2 Bazán/Burmeister & Wain 16V40/45 diesels; 24,000 hp(m) *(17.6 MW)* sustained; 1 shaft; LIPS cp prop
Speed, knots: 20. **Range, miles:** 13,440 at 20 kt
Complement: 146 plus 19 aircrew plus 20 spare
Cargo capacity: 6,815 tons dieso; 1,660 tons aviation fuel; 500 tons solids
Guns: 2 Bazán 20 mm/120 Meroka CIWS (fitted for). 2 Oerlikon 20 mm/90.
Countermeasures: Decoys: 4 SRBOC chaff launchers. Nixie torpedo decoy.
ESM/ECM: Aldebaran intercept and jammer.
Radars: 3 navigation/helo control; I-band.
Helicopters: 2 SH-3D Sea King or 3 AB 212.

Comment: The Bazán design AP 21 was rejected in favour of this joint Netherlands/Spain design. Ordered on 26 December 1991. Laid down 1 July 1993. Two supply stations each side for both liquids and solids. Stern refuelling. One Vertrep supply station, and workshops for aircraft maintenance. Medical facilities. Built to merchant ship standards with military NBC. Accommodation for up to 50 female crew members. SCOT 3 SATCOM to be fitted. Based at Ferrol.

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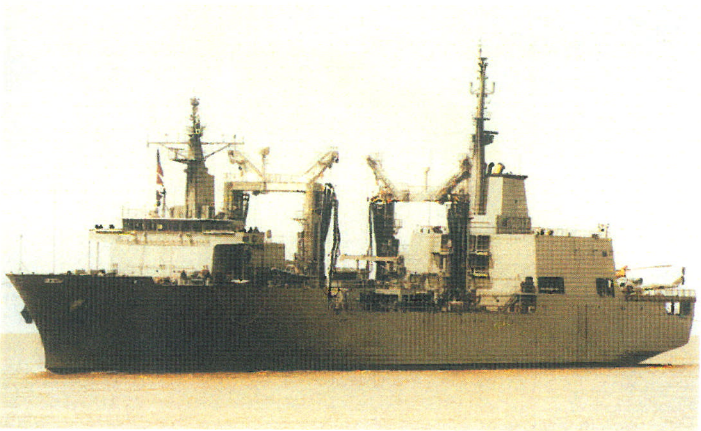

PATIÑO *10/2003*, A E Galarce* / 0570955

1 TRANSPORT SHIP (AKRH)

Name	*No*	*Builders*	*Commissioned*
MARTÍN POSADILLO (ex-*Rivanervión*, ex-*Cala Portals*)	A 04 (ex-ET-02)	Duro Felguera, Gijon	1973

Displacement, tons: 1,920 full load
Dimensions, feet (metres): 246.1 × 42.7 × 14.1 *(75 × 13 × 4.3)*
Main machinery: 1 BMW diesel; 2,400 hp(m) *(1.77 MW)*; 1 shaft
Speed, knots: 10
Complement: 18
Military lift: 42 trucks plus 25 jeeps
Helicopters: Platform for 1 Chinook.

Comment: Ro-Ro ship taken on by the Army in 1990 and transferred to the Navy on 14 February 2000. Based at Cartagena.

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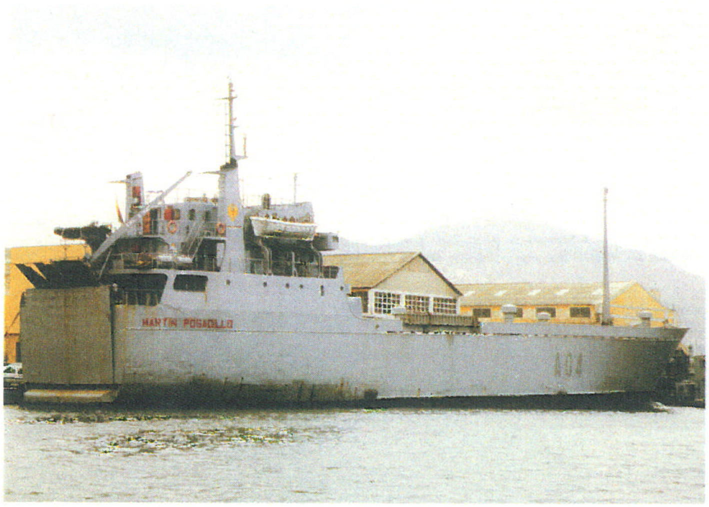

MARTÍN POSADILLO *5/2001, Camil Busquets i Vilanova* / 0130116

1 TRANSPORT SHIP (APH)

Name	*No*	*Builders*	*Recommissioned*
CONTRAMAESTRE CASADO (ex-*Thanasis-K*, ex-*Fortuna Reefer*, ex-*Bonzo*, ex-*Bajamar*, ex-*Leeward Islands*)	A 01	Eriksberg-Göteborg, Sweden	15 Dec 1982

Displacement, tons: 4,965 full load
Dimensions, feet (metres): 343.4 × 46.9 × 29.2 *(104.7 × 14.3 × 8.9)*
Main machinery: 1 Burmeister & Wain diesel; 3,600 hp(m) *(2.65 MW)*; 1 shaft
Speed, knots: 14. **Range, miles:** 8,000 at 14 kt
Complement: 72
Guns: 2 Oerlikon 20 mm.
Radars: Navigation: Racal Decca 1226 and 626; I-band.

Comment: Built in 1953. Impounded as smuggler. Delivered after conversion 6 December 1983. Has a helicopter deck. Since 2001, based at La Carraca (Cadiz).

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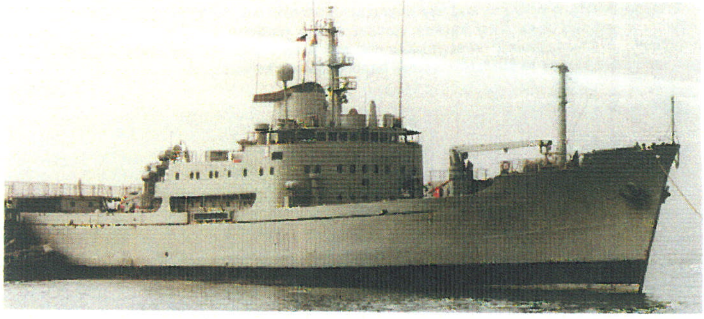

CONTRAMAESTRE CASADO *3/2001, Diego Quevedo* / 0132007

7 HARBOUR TANKERS (YO)

No	*Displacement, tons*	*Dimensions metres*	*Cargo, tons fuel*	*Commissioned*
Y 231	524	34 × 7 × 2.9	300	1981
Y 237	344	34.3 × 6.2 × 2.5	193	1965
Y 251	830	42.8 × 8.4 × 3.1	500	1981
Y 252	337	34.3 × 6.2 × 2.5	193	1965
Y 253	337	34.3 × 6.2 × 2.5	193	1965
Y 254	214.7	24.5 × 5.5 × 2.2	100	1981
Y 255	524	34 × 7 × 2.9	300	1981

Comment: All built by Bazán at Cádiz and Ferrol.

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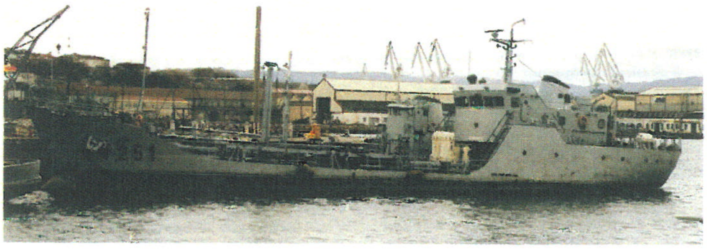

Y 251 *11/2003*, Diego Quevedo* / 0570953

1 TRANSPORT SHIP (AKR)

Name	*No*	*Builders*	*Commissioned*
EL CAMINO ESPAÑOL (ex-*Araguary*, ex-*Cyndia*)	A 05 (ex-ET 03)	Maua, Rio de Janeiro	Oct 1984

Displacement, tons: 5,804 full load
Dimensions, feet (metres): 313.6 × 59.8 × 15.2 *(95.5 × 18.3 × 4.6)*
Main machinery: 2 Sulzer diesels; 6,482 hp(m) *(4.76 MW)*; 2 shafts
Speed, knots: 12
Complement: 24 (3 officers) plus 40 Army
Military lift: 24 tanks plus 15 trucks and 102 jeeps
Radars: Navigation: I-band.

Comment: Acquired by the Army in early 1999 but commissioned into the Navy on 21 September 1999. Ro-Ro design converted for military use by Bazán in Cartagena. Used for logistic support of armed forces. Has two 25 ton cranes. Based at Cartagena.

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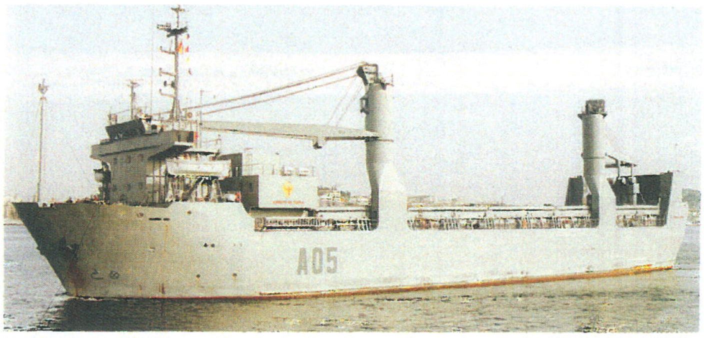

EL CAMINO ESPAÑOL *3/2000, Diego Quevedo* / 0105644

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1 FLEET TANKER (AORLH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
MARQUÉS DE LA ENSENADA (ex-*Mar del Norte*)	A 11	Bazán, Ferrol	5 Oct 1990	3 June 1991

Displacement, tons: 13,592 full load
Dimensions, feet (metres): 403.9 oa; 377.3 wl × 64 × 25.9 *(123.1; 115 × 19.5 × 7.9)*
Main machinery: 1 MAN-Bazán 18V40/50A; 11,247 hp(m) *(8.27 MW)* sustained; 1 shaft
Speed, knots: 16. **Range, miles:** 10,000 at 15 kt
Complement: 80 (11 officers)
Cargo capacity: 7,498 tons dieso; 1,746 tons JP-5; 120 tons deck cargo
Guns: 2—12.7 mm MGs.
Radars: Surface search: Racal Decca 2459; I/F-band.
Navigation: Racal Decca ARPA 2690/9; I-band.
Helicopters: 1 AB 212 or similar.

Comment: Ordered 30 December 1988; laid down 16 November 1989. The deletion of the *Teide* left a serious deficiency in the Fleet's at sea replenishment capability which has been restored by the *Patiño*. In addition, and as a stop gap, this tanker was built at one third of the cost of the larger support ship. Two Vertrep stations and a platform for a Sea King size helicopter. Replenishment stations on both sides and one astern. Provision for Meroka CIWS four chaff launchers as well as ESM. Has a small hospital. Based at Rota.

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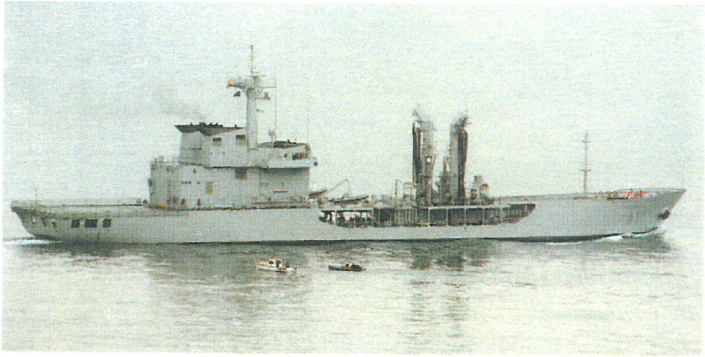

MARQUÉS DE LA ENSENADA *5/2001, Giorgio Ghiglione* / 0130115

2 LOGISTIC SUPPORT SHIPS (ATF/AGDS)

Name	*No*	*Builders*	*Commissioned*
MAR CARIBE (ex-*Amatista*)	A 101	Duro Felguera, Gijon	24 Mar 1975
NEPTUNO (ex-*Mar Rojo, ex-Amapola*)	A 20 (ex-A 102)	Duro Felguera, Gijon	24 Mar 1975

Displacement, tons: 1,860 full load
Dimensions, feet (metres): 176.4 × 38.8 × 14.8 *(53.8 × 11.8 × 4.5)*
Main machinery: 2 Echevarria-Burmeister & Wain 18V23HU diesels; 4,860 hp(m) *(3.57 MW)*; 2 shafts; bow thruster
Speed, knots: 12. **Range, miles:** 6,000 at 10 kt
Complement: 44

Comment: Two offshore oil rig support tugs were acquired and commissioned into the Navy 14 December 1988. Bollard pull, 80 tons. *Neptuno* converted as a diver support vessel. She has a dynamic positioning system and carries a side scan mine detection high-frequency sonar as well as a semi-autonomous remote-controlled DSRV. The control cable restricts operations to within 75 m of an auxiliary diving unit. The DSRV is launched and recovered by a hydraulic arm. *Mar Caribe* works with Amphibious Forces and is based at Cadiz. *Neptuno* based at Cartagena.

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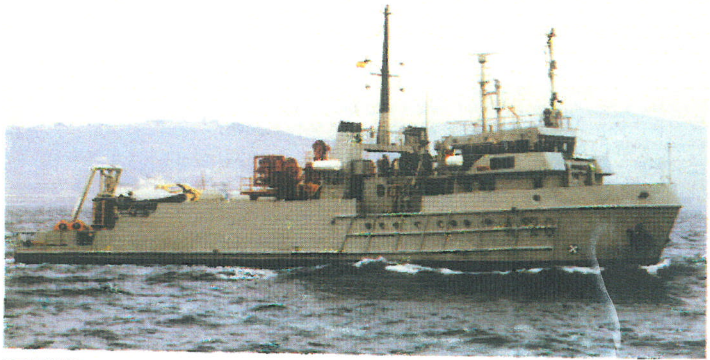
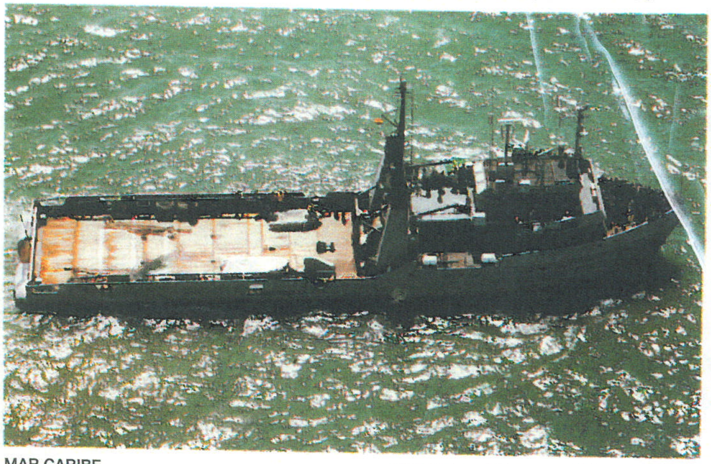


NEPTUNO *11/2002*, A Campanera i Rovira* / 0570952



MAR CARIBE *5/2000, Camil Busquets i Vilanova* / 0132005

1 WATER TANKER (AWT)

Name	*No*	*Builders*	*Commissioned*
MARINERO JARANO	A 65 (ex-AA 31)	Bazán, Cádiz	16 Mar 1981

Displacement, tons: 549 full load
Dimensions, feet (metres): 123 × 23 × 9.8 *(37.5 × 7 × 3)*
Main machinery: 1 diesel; 600 hp(m) *(441 kW)*; 1 shaft
Speed, knots: 10
Complement: 13
Cargo capacity: 300 tons

Comment: Similar to Y 231 and Y 255 (harbour tankers). Based at Cartagena.

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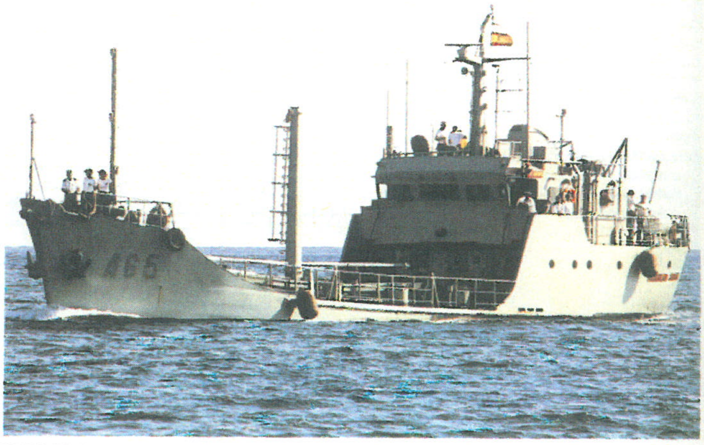

MARINERO JARANO *9/2003*, Diego Quevedo* / 0570951

1 WATER TANKER (AWT)

Name	*No*	*Builders*	*Commissioned*
CONDESTABLE ZARAGOZA	A 66 (ex-AA 41)	Bazán, Cádiz	16 Oct 1981

Displacement, tons: 895 full load
Dimensions, feet (metres): 152.2 × 27.6 × 11.2 *(46.4 × 8.4 × 3.4)*
Main machinery: 1 diesel; 700 hp(m) *(515 kW)*; 1 shaft
Speed, knots: 10
Complement: 16
Cargo capacity: 600 tons

Comment: Based at Puntales (Cadiz).

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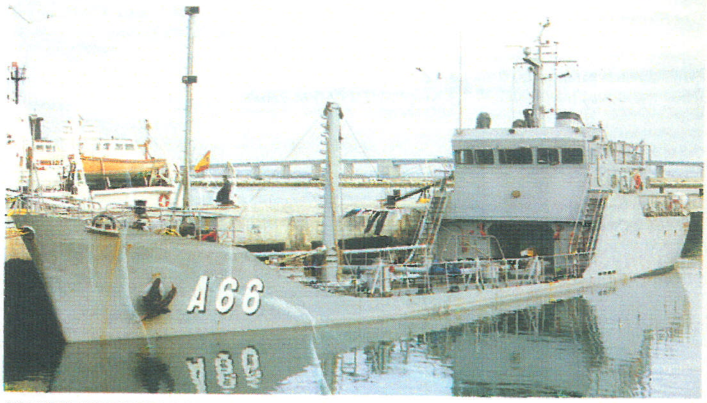

CONDESTABLE ZARAGOZA *2/1995, Diego Quevedo* / 0080637

47 BARGES (YO/YE)

Comment: Have Y numbers. 11 in 200 series carry fuel, 30 in 300 for ammunition and general stores, six in 400 for anti-pollution. Some floating pontoons have L numbers.

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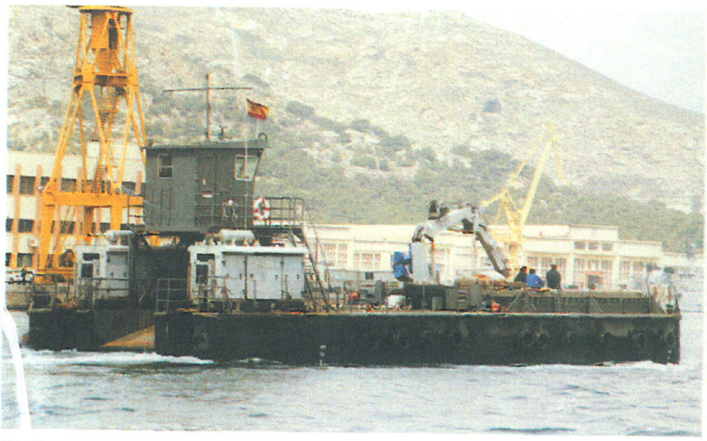

Y 363 *5/2001, A Campanera i Rovira* / 0130108

35 HARBOUR LAUNCHES (YDT/YFL)

Y 502-512
Y 515
Y 519
Y 521-527
Y 529-535
Y 539
Y 540
Y 545
Y 548
Y 579-580
Y 583-584

Comment: Some used as diving tenders, others as harbour ferries. Some are former patrol craft of the 'P 101' and 'P 202' class. *Y 540* is an Admirals' Yacht.

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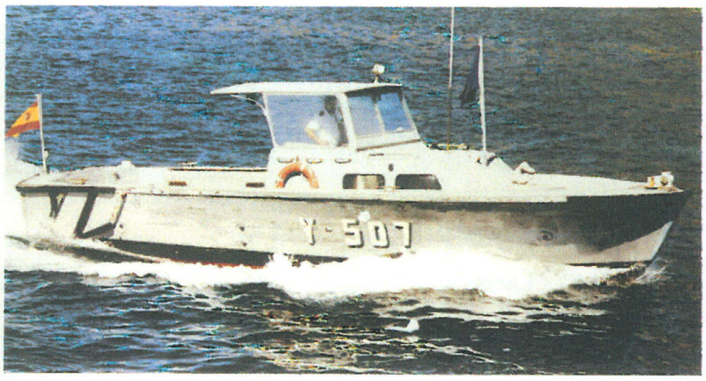
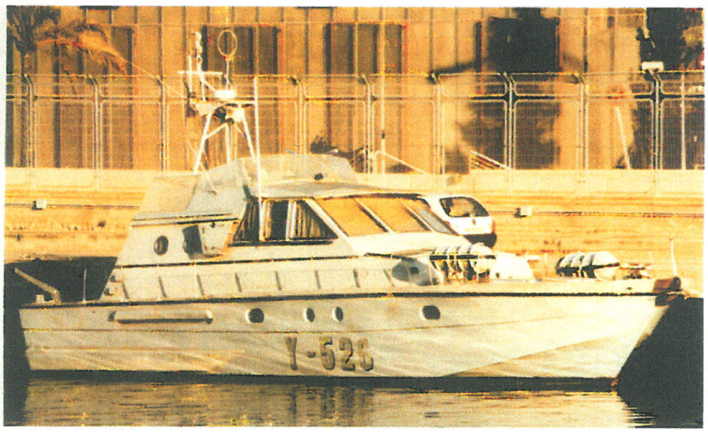


Y 507 *9/2003*, Adolfo Ortigueira Gil* / 0570968



Y 526 *1/2003*, Diego Quevedo* / 0570967

TRAINING SHIPS

6 SAIL TRAINING SHIPS (AXS)

Name	*No*	*Builders*	*Commissioned*
JUAN SEBASTIÁN DE ELCANO	A 71	Echevarrieta, Cádiz	17 Aug 1928
AROSA	A 72	Inglaterra	1 Apr 1981
LA GRACIOSA (ex-*Dejá Vu*)	A 74	Inglaterra	30 June 1988
GIRALDA (ex-*Southern Cross*)	A 76	Morris & Mortimer, Argyll	26 Aug 1993
SISARGAS	A 75	Novo Glass, Polinya	18 May 1995
SÁLVORA	A 77	—	29 May 2001

Displacement, tons: 3,420 standard; 3,656 full load
Dimensions, feet (metres): 308.5 oa × 43.3 × 24.6 *(94.1 × 13.15 × 7.46)*
Main machinery: 1 Deutz MWM KHD 6M diesel; 1,950 hp(m) *(1.43 MW)*; 1 shaft
Speed, knots: 9. **Range, miles:** 10,000 at 9 kt
Complement: 347 (students 120)
Guns: 2—37/80 mm Bazán saluting guns.
Radars: Navigation: 2 Racal Decca; I-band.

Comment: Details are for A 71 (based at La Carraca) which is a four masted top-sail schooner-near sister of Chilean *Esmeralda.* Named after the first circumnavigator of the world (1519-22) who succeeded to the command of the expedition led by Magellan after the latter's death. Laid down 24 November 1925. Launched on 5 March 1927. Carries 230 tons oil fuel. Engine replaced in 1992. Five further are based at the Naval School, Marín. A ketch (A 72) (52 tons and 22.84 m in length), a schooner (A 74) (16.8 m in length), a 90 tons ketch (A 75) launched in 1958 and formerly owned by the father of King Juan Carlos I and presented to the Naval School in 1993, an ex-yacht (A 76) and a yacht (A 77).

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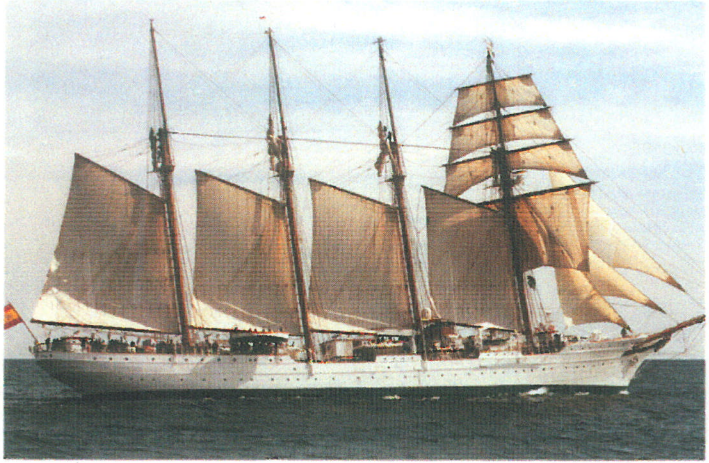


JUAN SEBASTIÁN DE ELCANO *3/2002, A Campanera i Rovira* / 0529022

4 TRAINING CRAFT (AXL)

Name	*No*	*Builders*	*Commissioned*
GUARDIAMARINA SALAS	A 82	Cartagena	10 May 1983
GUARDIAMARINA GODÍNEZ	A 83	Cartagena	4 July 1984
GUARDIAMARINA RULL	A 84	Cartagena	11 June 1984
GUARDIAMARINA CHEREGUINI	A 85	Cartagena	11 June 1984

Displacement, tons: 56 full load
Dimensions, feet (metres): 62 × 16.7 × 5.2 *(18.9 × 5.1 × 1.6)*
Speed, knots: 13
Complement: 15; 22 (A 81)
Radars: Navigation: Halcon 948; I-band.

Comment: Tenders to Naval School. A 81 has been decommissioned. ***UPDATED***

GUARDIAMARINA CLASS *2/2002, Diego Quevedo* / 0528943

TUGS

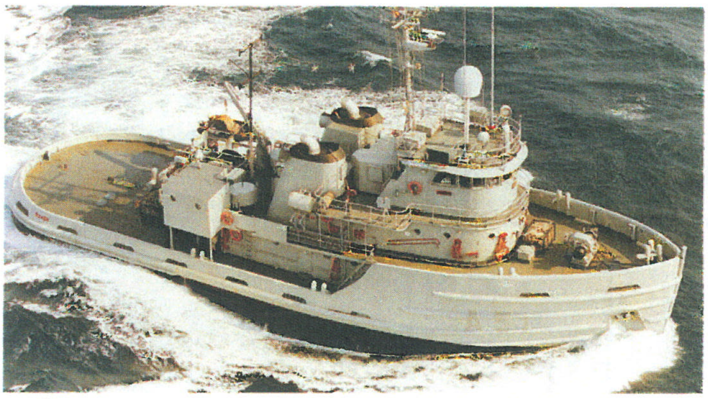
2 OCEAN TUGS (ATA/AGOB)

Name	*No*	*Builders*	*Commissioned*
MAHÓN (ex-*Circos*)	A 51	Astilleros Atlántico, Santander	1978
LAS PALMAS (ex-*Somiedo*)	A 52	Astilleros Atlántico, Santander	1978

Displacement, tons: 1,450 full load
Dimensions, feet (metres): 134.5 × 38.1 × 18 *(41 × 11.6 × 5.5)*
Main machinery: 2 AESA/Sulzer 16ASV25/30 diesels; 7,744 hp(m) *(5.69 MW)*; 2 shafts
Speed, knots: 13. **Range, miles:** 27,000 at 12 kt (A 52)
Complement: 33 (8 officers) plus 45 scientists
Guns: 2—12.7 mm MGs.
Radars: Navigation: 2 Racal Decca; I-band.

Comment: Built for Compania Hispano Americana de Offshore SA. Commissioned in the Navy 30 July 1981. *Las Palmas* converted in 1988 for Polar Research Ship duties in Antarctica with an ice strengthened bow, an enlarged bridge and two containers aft for laboratories. Based at Las Palmas and used as a tug. *Mahón* based at Ferrol and *Las Palmas* at Cartagena.

UPDATED



MAHÓN *7/2000, Adolfo Ortigueira Gil* / 0105651

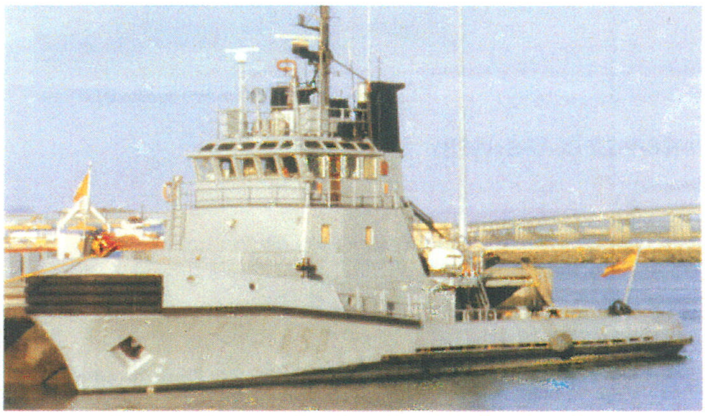
1 OCEAN TUG (ATA)

Name	*No*	*Builders*	*Commissioned*
LA GRAÑA (ex-*Punta Amer*)	A 53 (ex-Y 119)	Astilleros Luzuriaga, San Sebastian	1982

Displacement, tons: 664 full load
Dimensions, feet (metres): 102.4 × 27.6 × 10.5 *(31.2 × 8.4 × 3.2)*
Main machinery: 1 diesel; 3,240 hp(m) *(2.38 MW)*; 1 Voith Schneider prop
Speed, knots: 13. **Range, miles:** 1,750 at 12 kt
Complement: 28

Comment: Former civilian tug acquired by Navy on 20 October 1987. Now designated as ocean-going. Based at Cadiz.

UPDATED



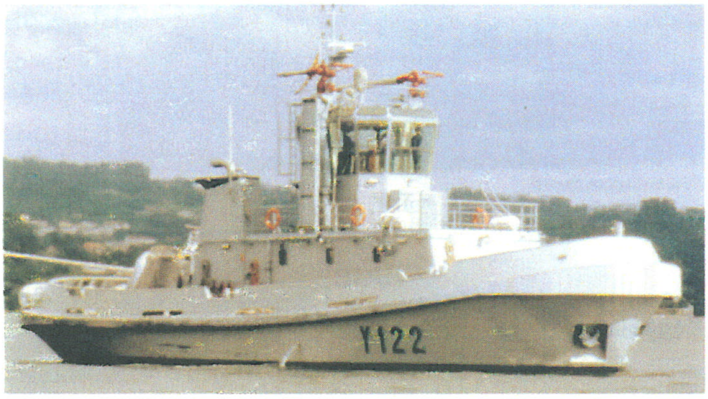
LA GRAÑA *4/2003*, Camil Busquets i Vilanova* / 0570983

27 COASTAL and HARBOUR TUGS (YTB/YTM/YTL)

No	*Displacement tons (full load)*	*HP/speed*	*Commissioned*
Y 116-117	422	1,500/12	1981
Y 118, Y 121-126	236	1,560/14	1989-91
Y 120 (ex-*Punta Roca*)	260	1,750/12	1973
Y 132, Y 140	70	200/8	1965-67
Y 141-142	229	800/11	1981
Y 143	133	600/10	1961
Y 144-145	195	2,030/11	1983
Y 147-148	87	400/10	1987/1999
Y 171-178	10	440/11	1982/1985

Comment: *Y 143* has a troop carrying capability. *Y 171-176* are pusher tugs for submarines. *Y 118, Y 121-126* have Voith Schneider propulsion.

UPDATED

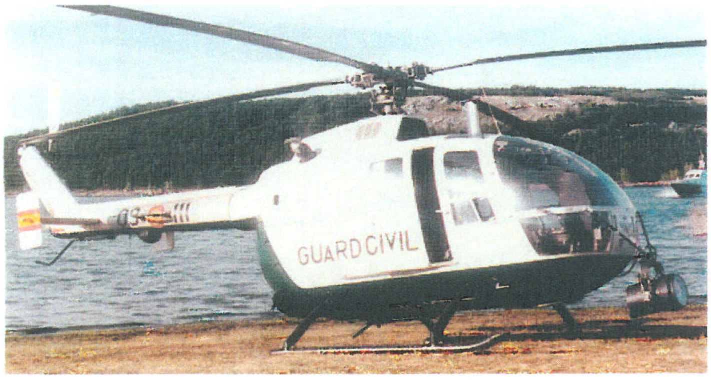


Y 122 — *5/2003*, Camil Busquets i Vilanova* / 0570984

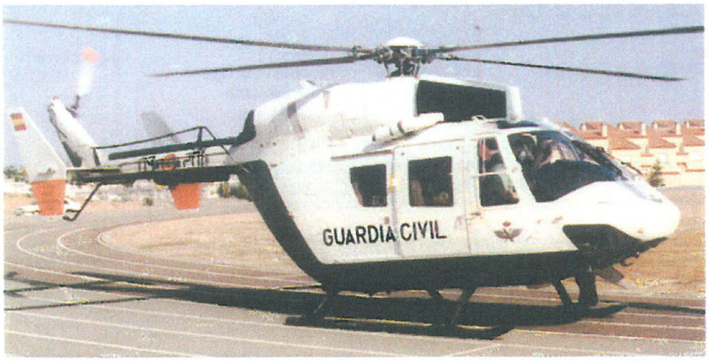
GOVERNMENT MARITIME FORCES

POLICE (GUARDIA CIVIL — MARITIME SERVICE)

Notes: Created by Royal decree on 22 February 1991 and owned by the Ministry of Interior. Bases at La Coruña, Barcelona, Valencia, Tarragona, Baleares, Cantabria, Almeira, Malaga, Murcia and, Algeciras. Personnel strength 1,000 (35 officers). The force has taken over the anti-terrorist role and some general patrol duties as a peacetime paramilitary organisation coming under the Ministry of Defence in war. In addition to the craft listed there are some 42 smaller craft (under 9 m). 18 BO 105 and 8 BK-117 helicopters are used for coastal patrols and are based at Tenerife, Seville, Valencia, Mallorca, Huesca, Logroño, Leon and La Coruña. All vessels are armed.



BO 105 — *6/2002, Adolfo Ortigueira Gil* / 0528941



BK 117 — *6/2002, Adolfo Ortigueira Gil* / 0528940

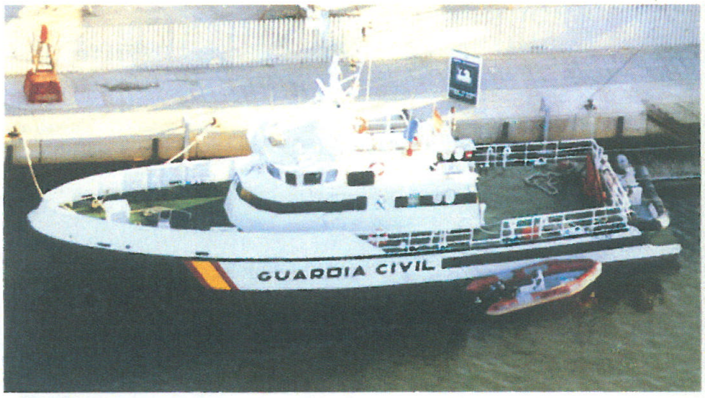
1 IZAR IVP-22 CLASS (WPB)

SALEMA A 01

Displacement, tons: 52 full load
Dimensions, feet (metres): 80.4 × 19.6 × 5.9 *(24.5 × 5.96 × 1.8)*
Main machinery: 2 MAN diesels; 1,100 hp *(820 kW)*
Speed, knots: 20. **Range, miles:** 400 at 12 kt
Complement: 8
Guns: 1—12.7 mm MG.
Radars: Navigation: I-band.

Comment: Built by Bazán, San Fernando. Steel hull. Commissioned on 24 June 1999 having been procured by Agriculture and Fisheries Ministry for operation by Guardia Civil. Hull lengthened in 2003 to facilitate operation of RIB. Based at Tarifa.

UPDATED



SALEMA — *9/2003*, Adolfo Ortigueira Gil* / 0570966

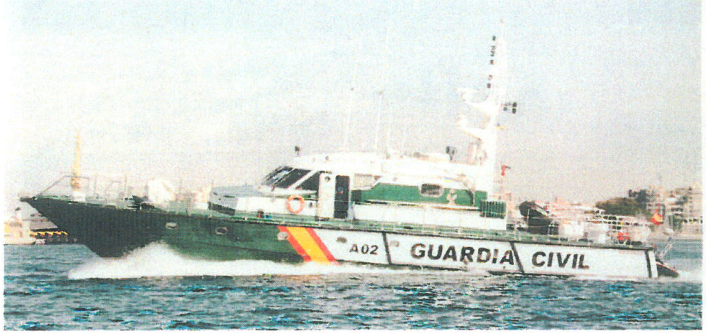
3 RODMAN 82 CLASS (WPB)

RIO GUADIARO (ex-*Seriola*) A 02 **RIO PISUERGA** A 03 **RIO NALON** A 04

Displacement, tons: 93 full load
Dimensions, feet (metres): 85.3 × 19.4 × 4.3 *(26.0 × 5.9 × 1.3)*
Main machinery: 2 diesels; 1,400 hp *(1.04 MW)*; 2 waterjets
Speed, knots: 30. **Range, miles:** 720 at 17 kt
Complement: 9
Radars: Navigation: I-band.

Comment: Built in 2001 by Rodman, Vigo. A 02 based at Alicante, A 03 at Algeciras and A 04 at Asturias. A 02 purchased by Fisheries department.

UPDATED



RIO GUADIARO — *4/2002, Diego Quevedo* / 0528939

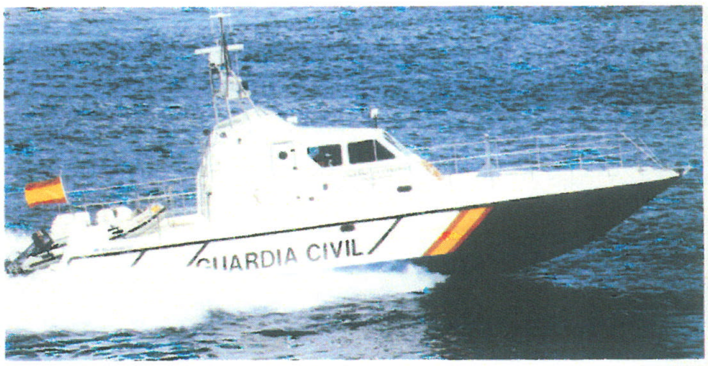
2 + 3 (9) RODMAN 55HJ CLASS (WPBF)

TINEYCHEIDE M 15 **RIO ARBA** **RIO CUADAL**
ALMIRANTE DIAZ PIMIENTA M 16 **RIO TURIA**

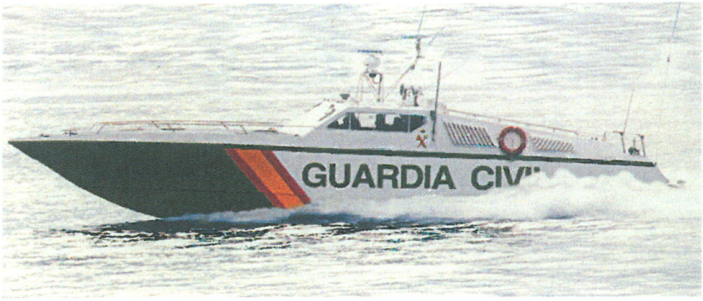
Displacement, tons: 17.1 full load
Dimensions, feet (metres): 55.8 × 12.5 × 2.9 *(17.0 × 3.8 × 0.9)*
Main machinery: 2 MAN D2848 LXE406 diesels; 2,300 hp *(1.71 MW)*; 2 Hamilton waterjets
Speed, knots: 48. **Range, miles:** 400 at 25 kt
Complement: 5
Guns: 1—12.7 mm MG.
Radars: Navigation: I-band.

Comment: GRP hull built by Rodman, Vigo. M 15 and M 16 purchased in 1999 by Canary Islands Agriculture and Fishery Department. Based at Lanzarote. Same class sold to Cyprus. Three further craft of a modified design for Guardia Civil to be delivered in 2004 and a further nine from 2005.

NEW ENTRY



TINEYCHEIDE — *8/1999*, Rodman* / 0570948



RODMAN 55HJ — *7/2003*, Rodman* / 0570939

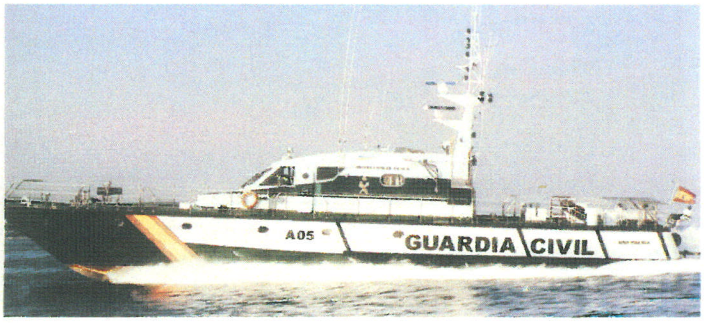
4 + 5 (2) RODMAN 101 CLASS (WPB)

RIO PALMA A 05
RIO ANDARAX A 06
RIO GUADALOPE A 07
RIO ALMANZORA A 08
RIO NERVION A 09
RIO CABRIEL A 10
RIO CERVANTES A 11
RIO ARA A 12
RIO ALFAMBA A 13

Displacement, tons: 63 full load
Dimensions, feet (metres): 98.4 × 19.4 × 4.3 *(30.0 × 5.9 × 1.3)*
Main machinery: 2 Caterpillar 3412C diesels; 2,800 hp *(2.06 MW)*; 2 Hamilton waterjets
Speed, knots: 30. **Range, miles:** 800 at 12 kt
Complement: 9
Guns: 1—12.7 mm MG.
Radars: Navigation: I-band.

Comment: GRP hull. Built by Rodman, Vigo and delivered in 2002 (A 05) and 2003 (A 06-08). A 09-13 to be delivered in 2004 and two further in 2005. A 05 and A 06 purchased by Agriculture and Fisheries Ministry. All operated by Guardia Civil. A 05 based at Tenerife, A 06 at La Coruña and A 07 at Lanzarote.

NEW ENTRY



RIO PALMA *7/2002*, Adolfo Ortigueira Gil* / 0570965

13 RODMAN 55M CLASS (WPBF)

M 02-14

Displacement, tons: 15.7 full load
Dimensions, feet (metres): 54.1 × 12.5 × 2.3 *(16.5 × 3.8 × 0.7)*
Main machinery: 2 MAN D2848-LXE diesels; 1,360 hp(m) *(1 MW)* sustained; 2 Hamilton waterjets
Speed, knots: 35. **Range, miles:** 500 at 25 kt
Complement: 7
Guns: 1—12.7 mm MG.
Radars: Surface search: Ericsson; I-band.

Comment: GRP hulls built by Rodman, Vigo. First five in service in 1992, three in 1993, six more in 1995-96. M 01 sunk in 2002. Known as 'Baltic' class.

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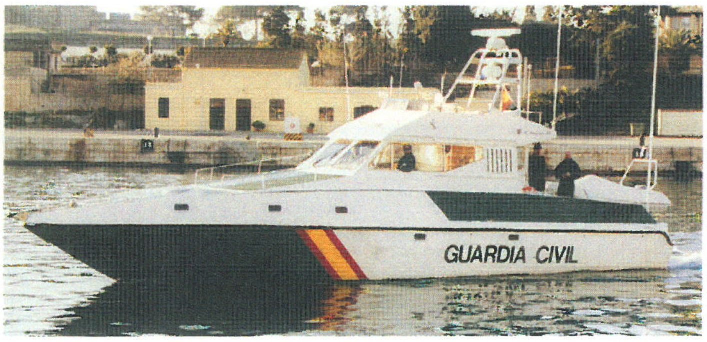

M 14 *1/2003, Diego Quevedo* / 0528950

12 SAETA-12 CLASS (WPBF)

L 01-12

Displacement, tons: 14 full load
Dimensions, feet (metres): 39 × 12.5 × 2.3 *(11.9 × 3.8 × 0.7)*
Main machinery: 2 MAN D2848-LXE diesels; 1,360 hp(m) *(1 MW)* sustained; 2 Hamilton waterjets
Speed, knots: 38. **Range, miles:** 300 at 25 kt
Complement: 4
Guns: 1—7.62 mm MG.
Radars: Surface search: Ericsson; I-band.

Comment: GRP hulls built by Bazán and delivered in 1993-97. Known as 'Aegean' class.

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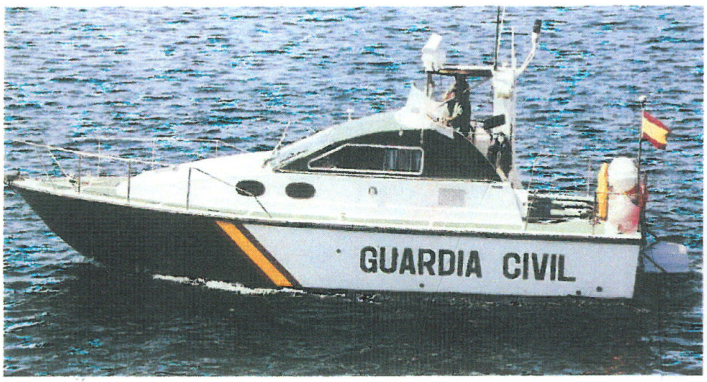
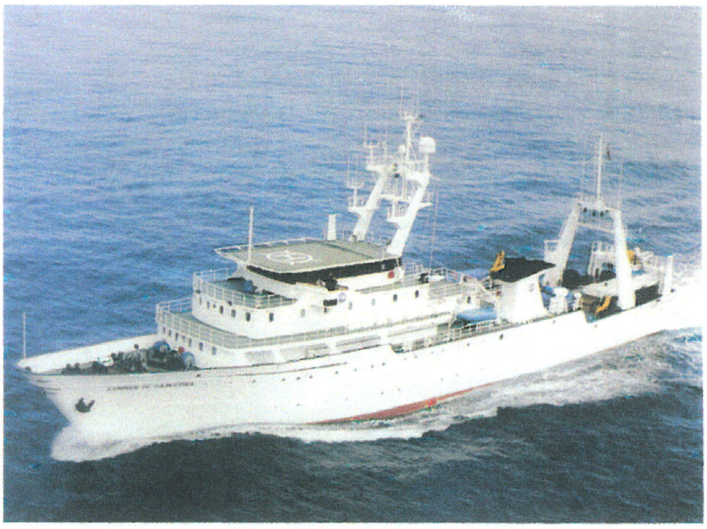


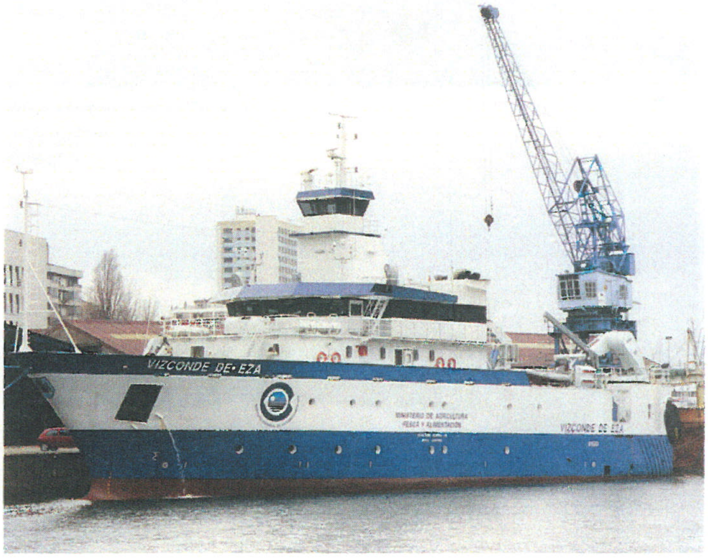
L 12 *5/2003*, Diego Quevedo* / 0570964

RESEARCH SHIPS

Notes: Nine civilian research ships are owned by the Government Science and Technology Ministry and by the Agriculture Fishery and Food Ministry. Those operated by the Instítuto Español de Oceanografía (IEO) are *Vízconde de Eza* (1,400 tons), *Cornide de Saavedra* (1,113 tons), *F P Navarro* (178 tons), *Odón de Buen* (64 tons), *Lura* (34 tons), *José Rioja* (32 tons) and *J M Navaz* (30 tons). Two further ships are expected in 2006. Those operated by CSIC are *Garcia del Cid* (539 tons) and *Mytilus* (170 tons). The ships operate in co-operation with the Spanish Navy ship *Hespérides* and the French research ship *Thalassa.*



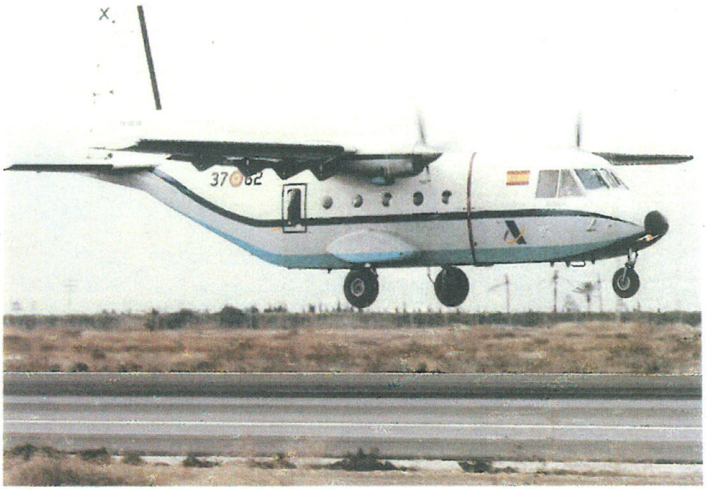
CORNIDE DE SAAVEDRA *3/2001, Adolfo Ortigueira Gil* / 0114274



VIZCONDE DE EZA *6/2001, Adolfo Ortigueira Gil* / 0114275

CUSTOMS

Notes: Customs service is the responsibility of the Ministry of Treasure. All carry ADUANAS on ships' sides. Some of the larger vessels are armed with machine guns. Ships are based at 17 ports including Ceuta and Melilla in north Africa. There are also three MBB-105, one MBB-117 and one AS 365 Dauphin helicopters. Six CASA C-212 patrol aircraft were transferred to the Air Force in 1997 and are operated by the 37th Air Wing.



CASA C-212 *3/2003*, Adolfo Ortigueira Gil* / 0570963

45 PATROL CRAFT (PB)

Name	*Displacement tons (full load)*	*HP/speed*	*Commissioned*
ÁGUILA	80	2,700/29	1974
ALBATROS II and III	85	2,700/29	1964-69
ALCA I and III	24	2,000/45	1987-88
ALCAUDON II/ALCOTÁN/FENIX	18.5	1,200/55	1997-99
ALCAVARÁN I-V	85	3,920/28	1984-87
COLIMBO II-IV	17	2,400/50	1999-03
CORMORÁN	22	2,970/65	1990
GAVILÁN II-IV	65	3,200/26	1983-87
ARAO/GERIFALTE/ DÉCIMO ANIVERSARIO	46	2,366/35	2001/2003
HJ A, HJ 1, HJ III-X	20	2,000/50	1986
HALCÓN II-III	68	3,200/28	1980-83
IMP I-II	5	600/40	1989
IPP I and III	2	200/50	1989
MILANO II	15	2,000/50	1999
PETREL I	1,600	1,200/12	1994
VA II-V	23	1,400/27	1985

Comment: These craft are also listed as auxiliary ships of the Navy. Flagship is *Petrel I* for which replacement is under consideration. A further seven 'Rodman 101' *(Gerifalte)* are to be procured.

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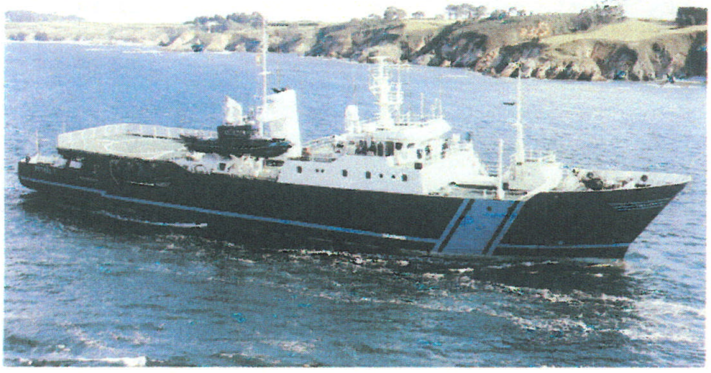
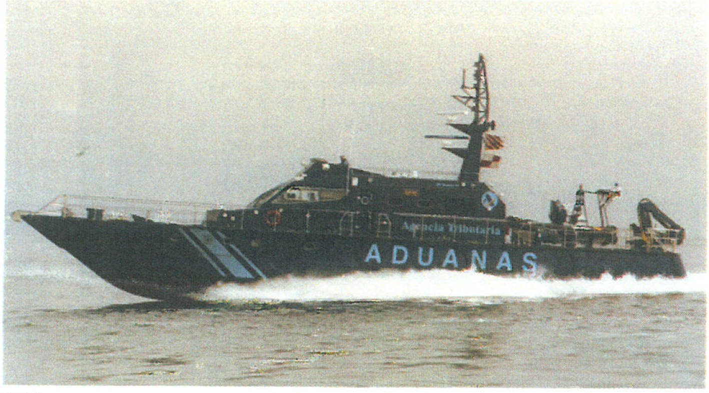
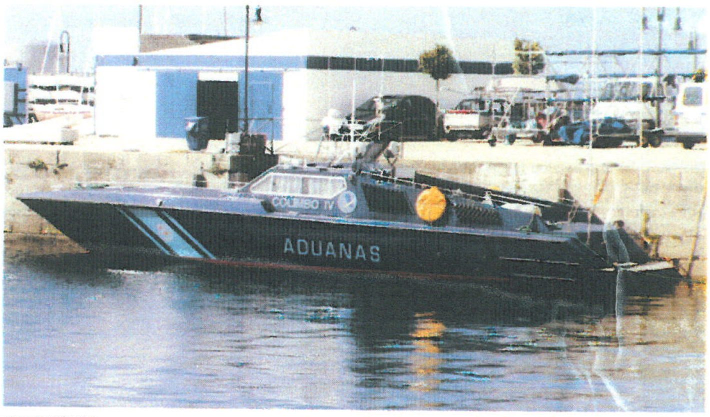


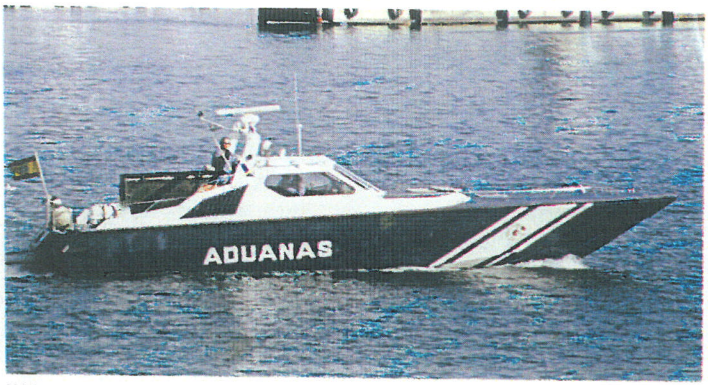
PETREL I *11/2003*, Javier Somavilla* / 0570950



ARAO *7/2003*, Rodman* / 0570976



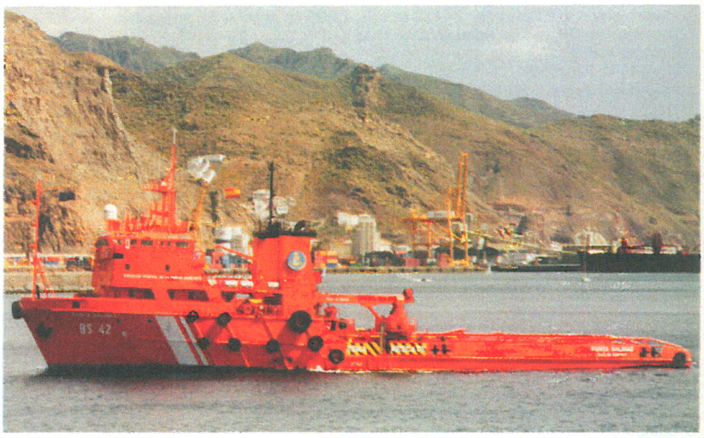
COLIMBO IV *11/2003*, Javier Somavilla* / 0570949



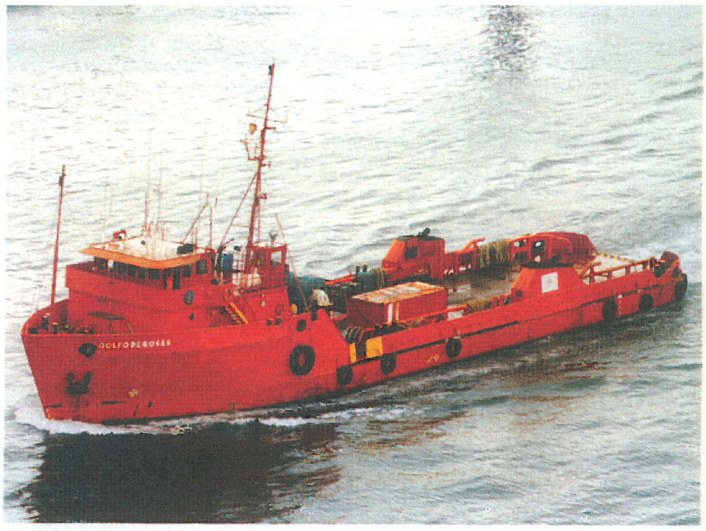
HJ 1 *7/2003*, A Campanera i Rovira* / 0570941

MARITIME RESCUE, SAFETY AND LOGISTIC SUPPORT

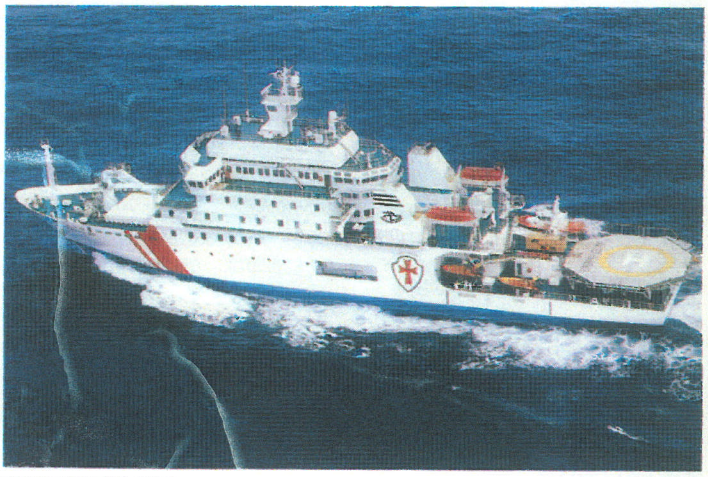
Notes: These roles are discharged by two services: SASEMAR (Sociedad Estatal de Salvamento y Seguridad Marítima) is under the direction of the Merchant Marine but may come under a Coast Guard service in due course. It operates 11 salvage tugs (two more are being built), 38 small rescue craft, five harbour pollution craft and five Sikorsky S 61 helicopters. All ships are painted red. ISM (Instituto Social de la Marina) operates one specialised medical and logistic ship for support of fishing vessels. *Esperenza del Mar* (5,000 tons) is based at Las Palmas (Canary Islands) Naval Base. A second ship is to be based at Santander from 2005.



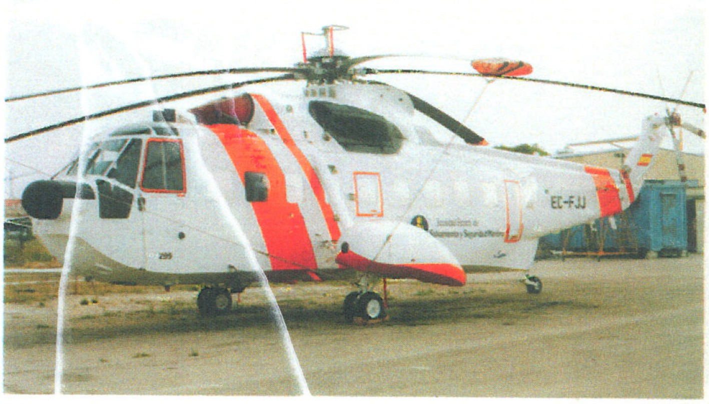
PUNTA SALENAS *8/2002, Adolfo Ortigueira Gil* / 0528948



GOLFO DE ROSAS *10/2000, A Campanera i Rovira* / 0105656



ESPERANZA DEL MAR *9/2001, Adolfo Ortigueira Gil* / 0130140



S 61 *8/2002, Adolfo Ortigueira Gil* / 0528949

Sri Lanka

Country Overview

Formerly known as Ceylon, the Democratic Socialist Republic of Sri Lanka gained independence in 1948. Situated off the southeast coast of India, from which it is separated by the Palk Strait and Gulf of Mannar, it has an area of 25,326 square miles and a coastline of 723 n miles with the Indian Ocean. The capital of Sri Lanka is Sri Jayavardhanapura (Kotte) while Colombo is the largest city and principal port. There are further ports at Trincomalee, Kankasanthurai and Galle. Territorial waters (12 n miles) are claimed. A 200 n mile EEZ has been claimed although the limits have only been partly defined by boundary agreements.

Headquarters Appointments

Commander of the Navy:
Vice Admiral D W K Sandagiri, VSV, USP
Chief of Staff:
Rear Admiral D S M Wijewickrama, RSP, USP
Director General, Operations:
Rear Admiral S P Weerasekara, RWP, USP

Area Commanders

Commander Eastern Naval Area:
Rear Admiral W K J Karannagoda, RSP, USP
Commander Western Naval Area:
Rear Admiral H S Ratnakeerthi, USP
Commander Northern Naval Area:
Rear Admiral C N Thuduwewatta, RSP, USP

Area Commanders — *continued*

Commander North Central Naval Area:
Commodore J H U Ranaweera, RWP, RSP, USP
Commander Southern Naval Area:
Commodore M R U Siriwardena, USP

Personnel

2004:

(a) 21,635 (1,252 officers) regulars
(b) SLVNF: 2,873 (190 officers)
(c) Reserve force (regular): 335 (9 officers)
(d) Reserve force (volunteer): 79 (1 officer)

Bases

Navy HQ: Colombo.
Western Command HQ: Colombo port (other bases at Welisara and Kalpitiya).
Eastern Command HQ: Trincomalee port (other bases at Nilaweli and Thiriyaya, Naval Academy at Trincomalee).
Southern Command HQ: Galle port (other bases at Tangalle, Boossa training centre and Kirinda harbour).
Northern Command HQ: Kankasanthurai port (other bases at Madagal, Karainagar, Velerni Island, Mandathive Island, Nagadeepa Island and Pungudathive Island).
North Central Command HQ: Medawachchiya (other bases at Punewa training centre, Thalaimannar and Mannar Island).

Pennant Numbers

Pennant numbers were reviewed in 1996 and 2002.

Prefix to Ships' Names

SLNS.

DELETIONS

Patrol Forces

2001	*P 495, P 251* (both sunk in action), P 101, P 104, P 241, P 243

Amphibious Forces

2002	*Lihiniya*

PATROL FORCES

1 SUKANYA CLASS OFFSHORE PATROL VESSEL (PSOH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SAYURA (ex-*Saryu*)	P 620 (ex-54)	Hindustan SY, Vishakapatnam	16 Oct 1989	8 Oct 1991

Displacement, tons: 1,890 full load
Dimensions, feet (metres): 331.7 oa; 315 wl × 37.7 × 14.4 *(101.1; 96 × 11.5 × 4.4)*
Main machinery: 2 SEMT-Pielstick 16 PA6 V 280 diesels; 12,800 hp(m) *(9.41 MW)* sustained; 2 shafts
Speed, knots: 21. **Range, miles:** 5,800 at 15 kt

Complement: 140 (15 officers)
Guns: 1 Bofors 40 mm/60. 2 China 14.5 mm (twin). 4—12.7 mm MGs.
Radars: Surface search: Racal Decca 2459; I-band.
Navigation: Bharat1245; I-band.

Comment: Transferred from India and recommissioned on 9 December 2000.

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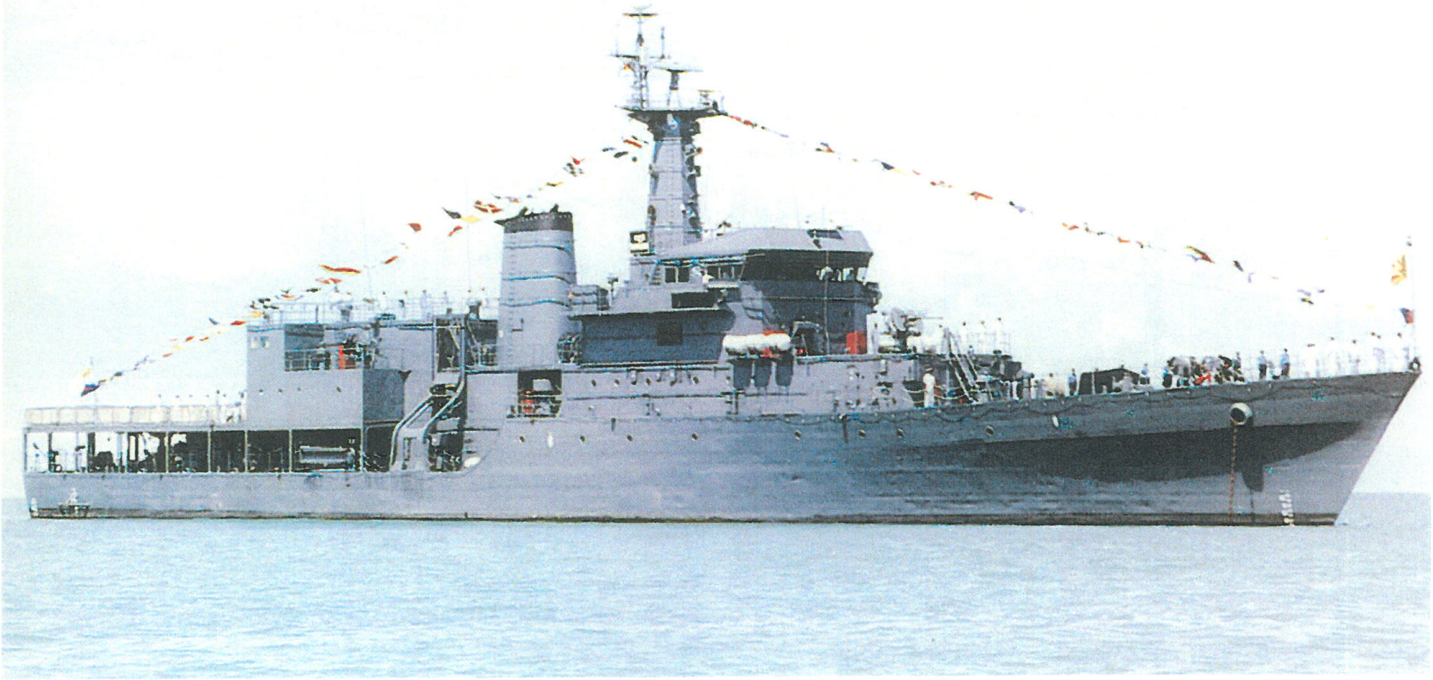


SAYURA

10/2001, Chris Sattler / 0130149

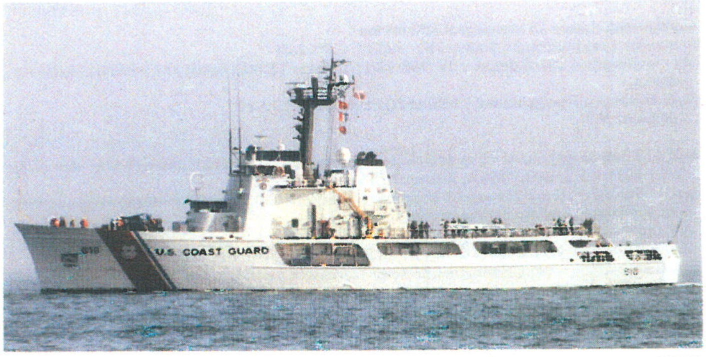
0 + 1 RELIANCE CLASS (PSOH)

Name	*No*	*Builders*	*Commissioned*
— (ex-*Courageous*)	— (ex-WMEC 622)	Coast Guard Yard, Baltimore	8 Dec 1967

Displacement, tons: 1,129 full load
Dimensions, feet (metres): 210.5 × 34 × 10.5 *(64.2 × 10.4 × 3.2)*
Main machinery: 2 Alco 16V-251 diesels; 6,480 hp *(4.83 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 18. **Range, miles:** 6,100 at 14 kt; 2,700 at 18 kt
Complement: 75 (12 officers)
Guns: 1 Boeing 25 mm/87 Mk 38 Bushmaster; 200 rds/min to 6.8 km *(3.4 n miles)*. 2—12.7 mm MGs.
Radars: Surface search: Hughes/Furuno SPS-73; I-band.
Helicopters: Platform for one medium.

Comment: To be transferred to Sri Lanka in 2004. During 34 years in USCG service, underwent Major Maintenance Availability (MMA) in 1989. The exhausts for main engines, ship service generators and boilers were run in a vertical funnel which reduced flight deck size. Capable of towing ships up to 10,000 tons.

NEW ENTRY



RELIANCE CLASS

10/2002, M Mazumdar / 0530032

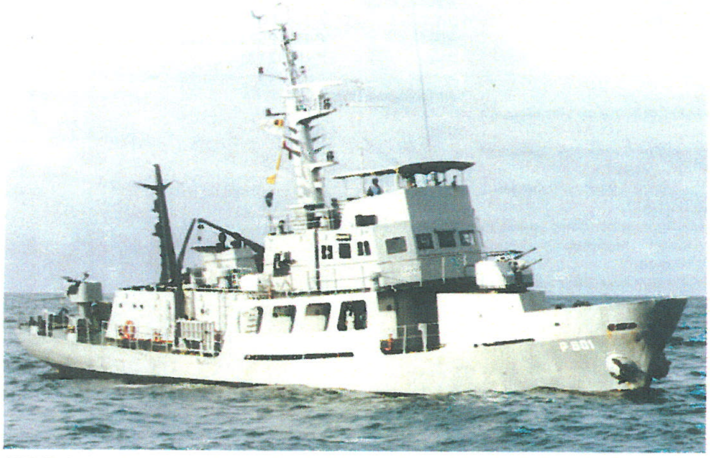
1 JAYASAGARA CLASS (OFFSHORE PATROL VESSEL) (PB)

Name	*No*	*Builders*	*Launched*	*Commissioned*
JAYASAGARA	P 601	Colombo Dockyard	26 May 1983	9 Dec 1983

Displacement, tons: 330 full load
Dimensions, feet (metres): 130.5 × 23 × 7 *(39.8 × 7 × 2.1)*
Main machinery: 2 MAN 8L20/27 diesels; 2,180 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 3,000 at 11 kt
Complement: 52 (4 officers)
Guns: 2 China 25 mm/80 (twin). 2 China 14.5 mm (twin) MGs. 2—12.7 mm MGs. 2—40 mm AGL. 2—7.62 mm MGs.
Radars: Surface search: Anritsu RA 723; I-band.

Comment: Ordered from Colombo Dockyard on 31 December 1981. Second of class sunk by Tamil forces in September 1994.

UPDATED



JAYASAGARA *6/1996, Sri Lanka Navy* / 0080691

1 HAIQING (TYPE 037/1) CLASS (FAST ATTACK CRAFT—GUN) (PC)

Name	*No*	*Builders*	*Commissioned*
PARAKRAMABAHU	P 351	Qingdao Shipyard	22 May 1996

Displacement, tons: 478 full load
Dimensions, feet (metres): 206 × 23.6 × 7.9 *(62.8 × 7.2 × 2.4)*
Main machinery: 4 PR 230ZC diesels; 4,000 hp(m) *(2.94 MW)*; 4 shafts
Speed, knots: 28. **Range, miles:** 1,300 at 15 kt
Complement: 71
Guns: 4 China 37 mm/63 (2 twin) Type 76A; 4 China 14.5 mm (2 twin) MGs Type 69.
A/S mortars: 2 Type 87 6-tubed launchers.
Radars: Surface search: Anritsu RA 273; I-band.
Sonars: Stag Ear; hull mounted; active search and attack; high frequency.

Comment: Ordered in March 1994 from China and delivered on 13 December 1995. This is a Hainan hull with a similar armament to the Chinese vessels of that class.

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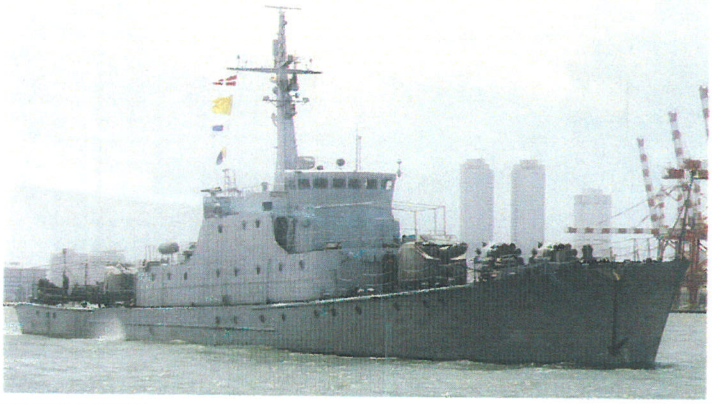

PARAKRAMABAHU *6/2003*, Sri Lanka Navy* / 0570990

2 SAAR 4 CLASS (FAST ATTACK CRAFT—MISSILE) (PGG)

Name	*No*	*Builders*	*Launched*	*Commissioned*
NANDIMITHRA (ex-*Moledt)*	P 701	Israel Shipyard, Haifa	22 Mar 1979	May 1979
SURANIMALA (ex-*Komemiut*)	P 702	Israel Shipyard, Haifa	19 July 1978	Aug 1980

Displacement, tons: 415 standard; 450 full load
Dimensions, feet (metres): 190.6 × 25 × 8 *(58 × 7.8 × 2.4)*
Main machinery: 4 MTU/Bazán 16V 956 TB91 diesels; 15,000 hp(m) *(11.03 MW)* sustained; 4 shafts
Speed, knots: 32. **Range, miles:** 1,650 at 30 kt; 4,000 at 17.5 kt
Complement: 75

Missiles: 3 Gabriel II; radar or TV optical guidance; semi-active radar plus anti-radiation homing to 36 km *(20 n miles)* at 0.7 Mach; warhead 75 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg. Adapated for shore bombardment.
1—40 mm.
2 Rafael Typhoon 20 mm. 2—20 mm. 2—12.7 mm MGs. 2—40 mm AGL.
Radars: Air/surface search: Thomson-CSF TH-D 1040 Neptune; G-band; range 33 km *(18 n miles)* for 2 m² target.
Fire control: Selenia Orion RTN 10X; I-band.

Comment: Transferred from Israel and recommissioned on 9 December 2000.

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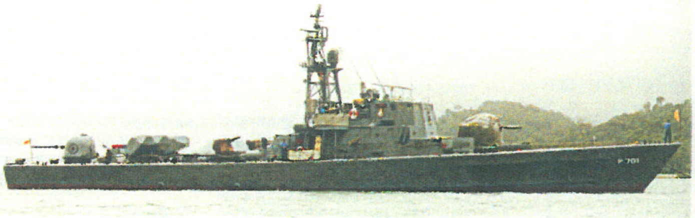

NANDIMITHRA *10/2003*, Hartmut Ehlers* / 0570991

5 SHANGHAI II (TYPE 062) CLASS (FAST ATTACK CRAFT—GUN) (PB)

WEERAYA P 311 (ex-P 3141)	**JAGATHA** P 315 (ex-P 3146)	**ABEETHA II** P 316	**EDITHARA II** P 317	**WICKRAMA II** P 318

Displacement, tons: 139 full load
Dimensions, feet (metres): 127.3 × 17.7 × 5.2 *(38.8 × 5.4 × 1.6)*
Main machinery: 4 Type L12-180 diesels; 4,800 hp(m) *(3.53 MW)*; 4 shafts
Speed, knots: 28. **Range, miles:** 750 at 16 kt
Complement: 44 (3 officers)
Guns: 4 (2 in P 311, P 315) Royal Ordnance GCM-AO3 30 mm (2 (1 in P 311, P 315) twin).
2—37 mm (twin) (P 311, P 315).
4 China 14.5 mm (2 twin) MG.
2—7.62 mm MGs.
2—40 mm AGL (P 311, P 315).
Radars: Surface search: Koden MD 3220 Mk 2; I-band.
Navigation: Furuno 825 D; I-band.

Comment: Five transferred by China in 1971 of which four since decommissioned and *Weeraya* remains in service. Two further craft transferred in 1980 of which *Jagatha* remains in service. Three further craft (*Abeetha II, Edithara II* and *Wickrama II*) are modified craft with improved habitability but similar specifications. These were built at Qinxin Shipyard and commissioned on 11 June 2000.

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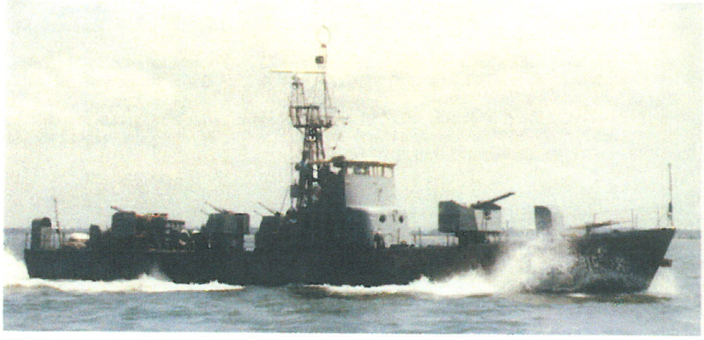
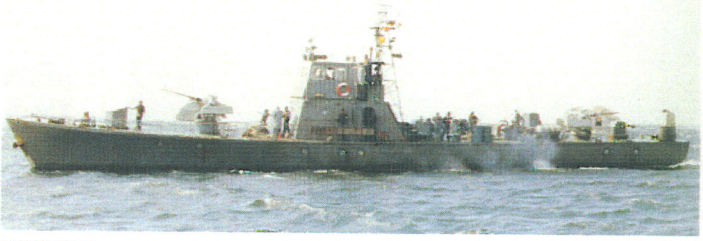


WEERAYA *6/2001, Sri Lanka Navy* / 0130146



EDITHARA II *6/2003*, Sri Lanka Navy* / 0570992

1 MOD SHANGHAI II CLASS (FAST ATTACK CRAFT—GUN) (PB)

Name	*No*	*Builders*	*Commissioned*
RANARISI	P 322	Guijiang Shipyard	14 July 1992

Displacement, tons: 150 full load
Dimensions, feet (metres): 134.5 × 17.7 × 5.2 *(41 × 5.4 × 1.6)*
Main machinery: 4 diesels; 4,800 hp(m) *(3.53 MW)*; 4 shafts
Speed, knots: 29. **Range, miles:** 750 at 16 kt
Complement: 44 (4 officers)
Guns: 2 China 37 mm/63 (1 twin) Type 76 or 2 Royal Ordnance GCM-AO3 30 mm (1 twin). 4 China 14.5 mm (twin) Type 69. 2—12.7 mm MGs. 2—40 mm AGL.
Radars: Surface search: Racal Decca; I-band.

Comment: Acquired from China in September 1991. Automatic guns and improved habitability. *Ranaviru* and *Ranasuvu* destroyed by Tamil guerrillas.

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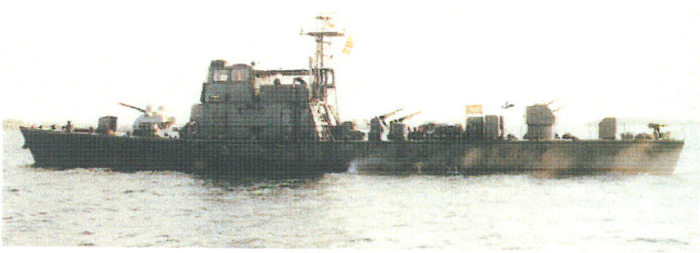

RANARISI *6/2003*, Sri Lanka Navy* / 0570988

3 HAIZHUI (TYPE 062/1G) CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
RANAJAYA	P 330	Guijiang Shipyard	22 May 1996
RANADEERA	P 331	Guijiang Shipyard	22 May 1996
RANAWICKRAMA	P 332	Guijiang Shipyard	22 May 1996

Displacement, tons: 170 full load
Dimensions, feet (metres): 134.5 × 17.4 × 5.9 *(41 × 5.3 × 1.8)*
Main machinery: 4 Type L12-180A diesels; 4,400 hp(m) *(3.22 MW)* sustained; 4 shafts
Speed, knots: 21
Complement: 44
Guns: 2 China 37 mm/63 (1 twin). 2 China 25 mm/60 (1 twin). 2—12.7 mm MGs. 2—40 mm AGL.
Radars: Surface search: Anritsu 726UA; I-band.

Comment: Transferred from China by lift ship after delivery in 1995.

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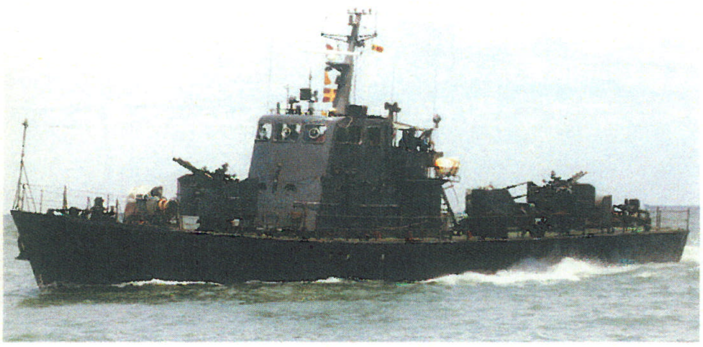

RANAJAYA *9/1996, Sri Lanka Navy* / 0080693

2 MOD HAIZHUI (LUSHUN) (TYPE 062/1G) CLASS (FAST ATTACK CRAFT—GUN) (PB)

PRATHPA P 340 **UDARA** P 341

Displacement, tons: 212 full load
Dimensions, feet (metres): 149 × 21 × 5.6 *(45.5 × 6.4 × 1.7)*
Main machinery: 4 Type Z12V 190 BCJ diesels; 4,800 hp(m) *(3.53 MW)*; 4 shafts
Speed, knots: 28. **Range, miles:** 750 at 16 kt
Complement: 44 (3 officers)
Guns: 2 China 37 mm/63 (1 twin) Type 76.
2 China 14.5 mm (1 twin) Type 82 MGs.
2—12.7 mm MGs.
2—40 mm AGL.
Radars: Surface search: Racal Decca RM 1070A; I-band.

Comment: Built at Lushun Dockyard, Darlin. Commissioned on 2 March 1998. Larger version of 'Haizhui' class.

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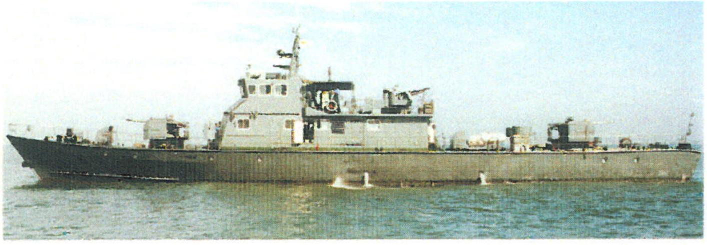

PRATHPA *3/1999, Sri Lanka Navy* / 0080699

22 COLOMBO MK I/II/III CLASS (FAST ATTACK CRAFT—GUN) (PBF)

P 410-419 **P 420-424** **P 450-451** **P 490-492** **P 494** **P 497**

Displacement, tons: 56 full load
Dimensions, feet (metres): 81.4 × 19.7 × 3.9 *(24.8 × 6 × 1.2)*
Main machinery: 2 MTU 12V 396 TE94 diesels; 4,570 hp(m) *(3.36 MW)*; ASD 16 surface drives
Speed, knots: 45. **Range, miles:** 850 at 16 kt
Complement: 20
Guns: 1 Rafael Typhoon 23 mm. 1 Oerlikon 20 mm. 4—12.7 mm MGs. 8—7.62 mm MGs. 2—40 mm AGL.
Weapons control: Elop MSIS optronic director; Typhoon GFCS.
Radars: Surface search: Furuno FR 8250 or Corden Mk 2; I-band.

Comment: Built by Colombo Dockyard to the Israeli Shaldag design. First deliveries 1997. Mk I (P 450-451); Mk II (P 490-492, P 494, P 497); Mk III (P 410-424). P 493 and P 496 sunk in action in 2000.

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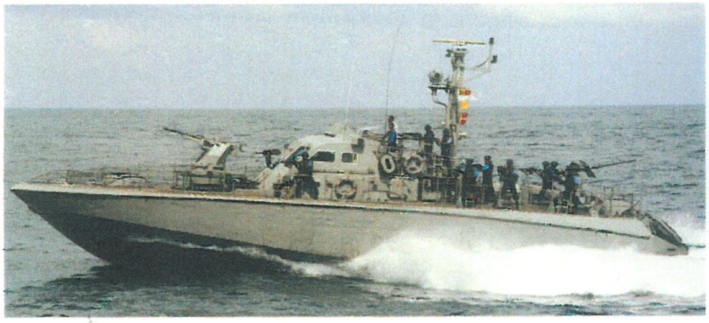

COLOMBO MK II *11/1999* / 0080695

7 SHALDAG CLASS (FAST ATTACK CRAFT—GUN) (PBF)

P 470 (ex-P 491) **P 471** (ex-P 492) **P 472-476**

Displacement, tons: 58 full load
Dimensions, feet (metres): 81.4 × 19.7 × 3.9 *(24.8 × 6 × 1.2)*
Main machinery: 2 Deutz 620 TB 16V or MTU 396 TE diesels; 5,000 hp(m) *(3.68 MW)*; 2 LIPS or MJP water-jets
Speed, knots: 50. **Range, miles:** 700 at 32 kt
Complement: 20
Guns: 1 Rafael Typhoon 23 mm. 1—20 mm. 4—12.7 mm MGs. 2—40 mm AGL.
Weapons control: ELOP compass optronic director. Typhoon GFCS.
Radars: Surface search: MD 3220 Mk II; I-band.

Comment: Originally launched in December 1989, first one acquired from the Israeli Shipyards, Haifa on 24 January 1996, second 20 July 1996 and third on 16 February 2000. Four more followed. Same hull used for the 'Colombo' class. Also in service in Cyprus.

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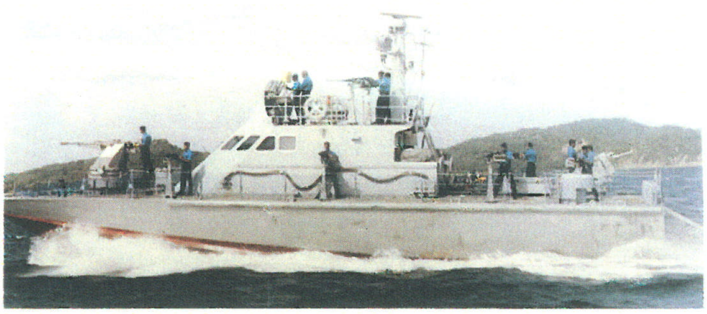

SHALDAG *6/2003*, Sri Lanka Navy* / 0570989

5 SUPER DVORA MK II CLASS (FAST ATTACK CRAFT—GUN) (PBF)

P 460 (ex-P 441) **P 461** (ex-P 496) **P 462** (ex-P 497) **P 464-465**

Displacement, tons: 64 full load
Dimensions, feet (metres): 82 × 18.4 × 3.6 *(25 × 5.6 × 1.1)*
Main machinery: 2 MTU 12V 396 TE94 diesels; 4,570 hp(m) *(3.36 MW)*; ASD16 surface drives
Speed, knots: 50. **Range, miles:** 700 at 30 kt
Complement: 20 (1 officer)
Guns: 1 Rafael Typhoon 20 mm or 2 Royal Ordnance GCM-AO3 30 mm (twin).
4—12.7 mm MGs. 6—7.62 mm MGs. 2—40 mm AGL.
Weapons control: Elop MSIS optronic director; Typhoon GFCS.
Radars: Surface search: Koden MD 3220; I-band.

Comment: First four ordered from Israel Aircraft Industries Ramta in early 1995. A slightly larger version of the Mk 1. First one delivered 5 November 1995, second 30 April 1996, third 22 June 1996 and fourth in December 1996. Two more were acquired on 9 June 1999 and 15 September 1999 respectively. The engines are an improved version of those fitted in the Israeli Navy craft. P 463 sunk in action in 2000.

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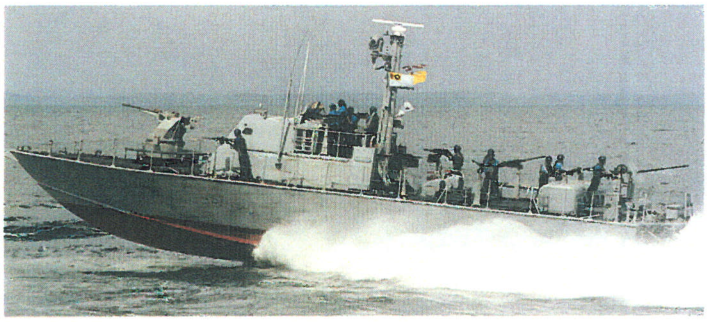

SUPER DVORA Mk II *11/1999* / 0080697

4 SUPER DVORA MK I CLASS (FAST ATTACK CRAFT—GUN) (PBF)

P 440-443 (ex-P 465-468)

Displacement, tons: 54 full load
Dimensions, feet (metres): 73.5 × 18 × 5.8 *(22.4 × 5.5 × 1.8)*
Main machinery: 2 MTU 12V 396 TB93 diesels; 3,260 hp(m) *(2.4 MW)* sustained; 2 shafts
Speed, knots: 46. **Range, miles:** 1,200 at 17 kt
Complement: 20 (1 officer)
Guns: 2 Oerlikon 20 mm. 2—12.7 mm MGs. 4—40 mm AGL.
Radars: Surface search: Decca 926; I-band.

Comment: Ordered from Israel Aircraft Industries in October 1986 and delivered in 1987-88. A more powerful version of the 'Dvora' class. *P 464* was destroyed by Tamil guerrillas on 29 August 1993 and *P 463* on 29 August 1995. These craft have a deeper draft than the Mk II version with surface drives.

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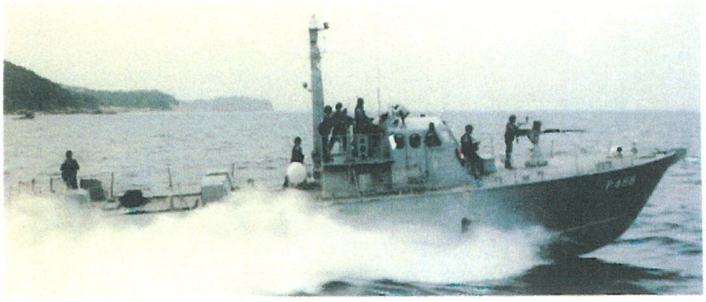

P 443 (ex-P 468) *1995, Sri Lanka Navy* / 0130147

3 DVORA CLASS (FAST ATTACK CRAFT—GUN) (PBF)

P 401-403 (ex-*P 420* (ex-*P 453*)-*P 422* (ex-*P 456*))

Displacement, tons: 47 full load
Dimensions, feet (metres): 70.8 × 18 × 5.8 *(21.6 × 5.5 × 1.8)*
Main machinery: 2 MTU 12V 331 TC81 diesels; 2,605 hp(m) *(1.91 MW)* sustained; 2 shafts
Speed, knots: 36. **Range, miles:** 1,200 at 17 kt
Complement: 18
Guns: 2 Oerlikon 20 mm. 2—12.7 mm MGs. 2—40 mm AGL.
Radars: Surface search: Anritsu 721UA; I-band.

Comment: 'Dvora' class, first pair of which transferred from Israel early 1984, next four in October 1986. Built by Israel Aircraft Industries. One sunk by Tamil forces on 29 August 1995 and second on 30 March 1996. One more deleted in late 1996. Not downgraded to patrol craft as previously reported but speed may have been reduced.

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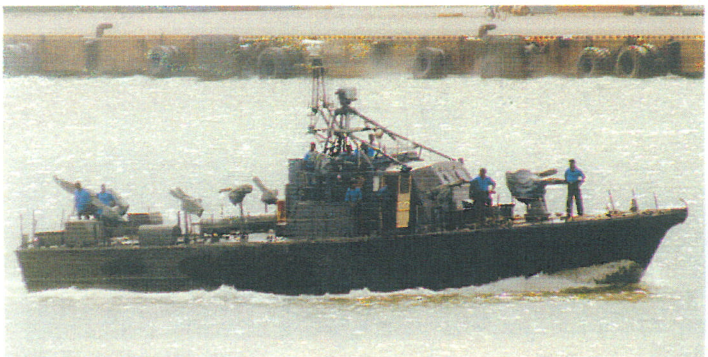

DVORA CLASS *6/2003*, A Sharma* / 0570995

3 SOUTH KOREAN KILLER CLASS (FAST ATTACK CRAFT—GUN) (PBF)

P 404-406 (ex-*P 430* (ex-*P 473*)-*P 432* (ex-*P 475*))

Displacement, tons: 56 full load
Dimensions, feet (metres): 75.5 × 17.7 × 5.9 *(23 × 5.4 × 1.8)*
Main machinery: 2 MTU 396 TB93 diesels; 3,260 hp(m) *(2.4 MW)* sustained; 2 shafts
Speed, knots: 40
Complement: 18
Guns: 2 Oerlikon 20 mm. 2—12.7 mm MGs.
Radars: Surface search: Racal Decca 926; I-band.

Comment: 'South Korean Killer' class, built by Korea SB and Eng, Buson. All commissioned February 1988. Not downgraded to patrol craft as previously reported but speed may have been reduced.

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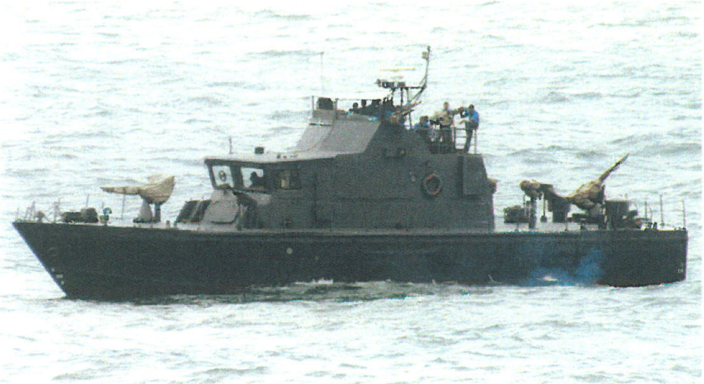

KILLER CLASS *6/2003*, A Sharma* / 0570994

5 TRINITY MARINE CLASS (FAST ATTACK CRAFT—GUN) (PBF)

P 480	**P 481**	**P 483-485**

Displacement, tons: 68 full load
Dimensions, feet (metres): 81.7 × 17.7 × 4.9 *(24.9 × 5.4 × 1.5)*
Main machinery: 2 MTU 12V 396 TE94 diesels; 4,570 hp(m) *(3.36 MW)* sustained; 2 water-jets
Speed, knots: 47. **Range, miles:** 600 at 17 kt
Complement: 20
Guns: 2 Oerlikon 20 mm. 2—12.7 mm MGs. 2—7.62 mm MGs. 1 Grenade launcher.
Radars: Surface search: Raytheon R 1210; I-band.

Comment: All built at Equitable Shipyard, New Orleans. First three delivered in January 1997; second three in September 1997. All aluminium construction. P 482 sunk in action in 2000.

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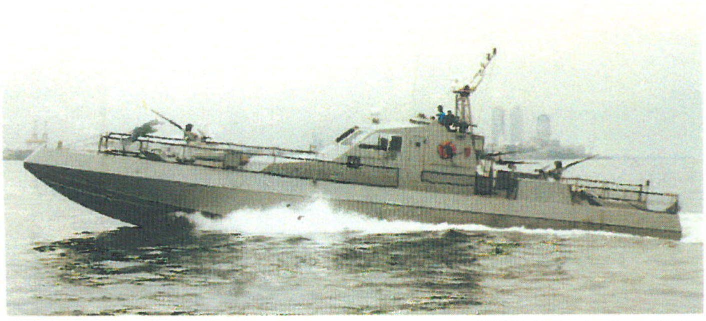

P 480 *1/1997, Sri Lanka Navy* / 0080701

5 COASTAL PATROL CRAFT (PB)

P 201	**P 211**	**P 214**	**P 215**	**P 233**

Displacement, tons: 21 full load
Dimensions, feet (metres): 46.6 × 12.8 × 3.3 *(14.2 × 3.9 × 1)*
Main machinery: 2 Detroit 8V-71TA diesels; 460 hp *(343 kW)*; 2 shafts
Speed, knots: 20. **Range, miles:** 450 at 14 kt
Complement: 15 (1 officer)
Guns: 1—12.7 mm MGs.
Radars: Surface search: Furuno FR 2010; I-band.

Comment: Built by Colombo DY and commissioned in 1982 *(P 201)*, June 1986 *(P 211* and *P 214)* and 1993 *(P 215)*. P 241 and P 243 decommissioned in 2001.

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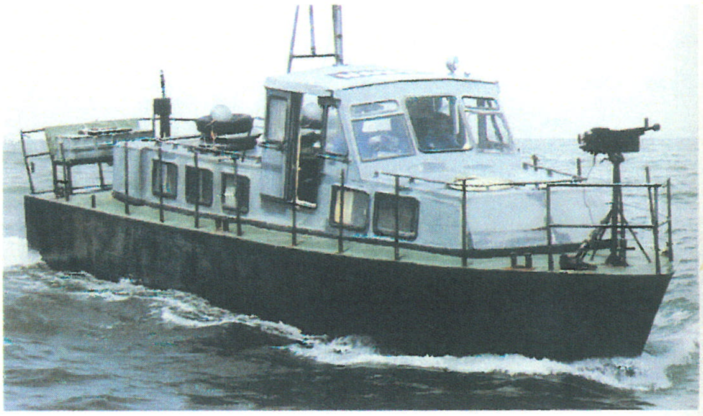

P 201 *6/2003*, Sri Lanka Navy* / 0570987

4 CHEVERTON CLASS COASTAL PATROL CRAFT (PB)

P 221-224 (ex-*P 421-424*)

Displacement, tons: 22 full load
Dimensions, feet (metres): 55.9 × 14.8 × 3.9 *(17 × 4.5 × 1.2)*
Main machinery: 2 Detroit 8V-71TA diesels; 460 hp *(343 kW)*; 2 shafts
Speed, knots: 23. **Range, miles:** 1,000 at 12 kt
Complement: 15
Guns: 1—12.7 mm MG.
Radars: Surface search: Racal Decca 110; I-band.

Comment: Used for general patrol duties. Built by Cheverton Workboats, UK and commissioned in 1977. One paid off in 1996.

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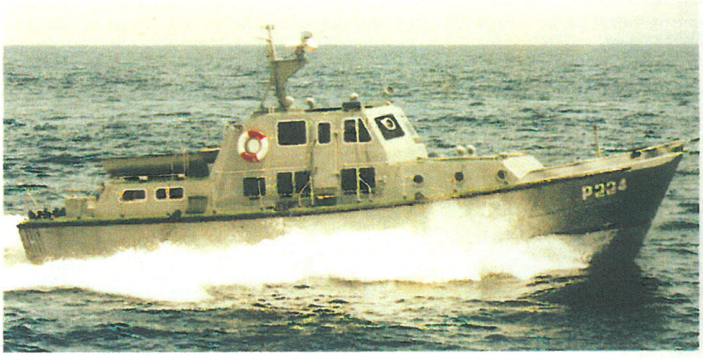

P 224 *3/1996, Sri Lanka Navy* / 0080705

3 SIMONNEAU CLASS (PBF)

P 250 (ex-*P 410*, ex-*P 483*)	**P 252** (ex-*P 412*, ex-*P 485*)	**P 253** (ex-*P 413*, ex-*P 486*)

Displacement, tons: 28 full load
Dimensions, feet (metres): 56.8 × 16.1 × 4.6 *(17.3 × 4.9 × 1.4)*
Main machinery: 2 MTU 12V 183 TE93 diesels; 2,300 hp(m) *(1.69 MW)*; 2 Hamilton water-jets
Speed, knots: 42. **Range, miles:** 500 at 35 kt
Complement: 15
Guns: 1 DCN 20 mm. 1—12.7 mm MG. 2—7.62 mm MGs.
Radars: Surface search: Racal Decca; I-band.

Comment: Simonneau Marine Type 508 craft. First pair completed in December 1993 and shipped to Colombo in 1994. Second pair built in Colombo and completed in 1995. The plan to build more was shelved. Downgraded to patrol craft on 1 August 2000. Speed likely to have been reduced. *P 251* sunk in 2001.

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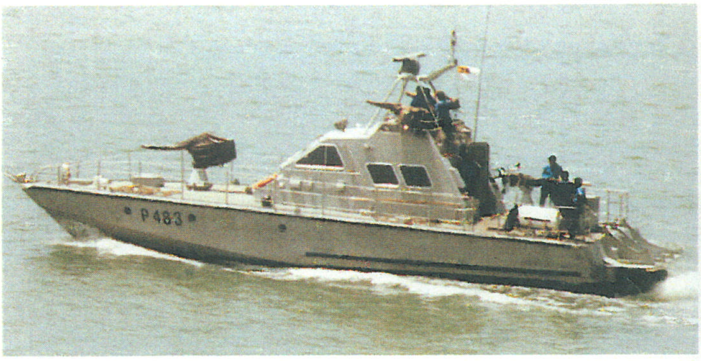

P 250 (old number) *6/1994, D A Cromby* / 0080704

36 INSHORE PATROL CRAFT (PBR)

P 120-126
P 151-152
P 162-167
P 169
P 171-173
P 175
P 180-181
P 183-194
P 196-197

Displacement, tons: 10 full load
Dimensions, feet (metres): 44.3 × 9.8 × 1.6 *(13.5 × 3 × 0.5)*
Main machinery: 2 Cummins 6BTA5.9-M2; 584 hp *(436 kW)* sustained; 2 water-jets
Speed, knots: 33. **Range, miles:** 330 at 25 kt
Complement: 5
Guns: 2—12.7 mm MGs. 2—7.62 mm MGs.
Radars: Surface search: Furuno 1941; I-band.

Comment: First pair (P 151, 152) built by TAOS Yacht Company, Colombo, and delivered in 1991. Next fifteen built by Blue Star Marine, Colombo and delivered in 1994-95 and seven more in 1997/98. There are minor superstructure differences between the first pair and the rest. P 120-126 built by SLN, IPCCP Welisara. More are being built. P 168, P 174 and P 182 sunk in action. P 101 and P 104 decommissioned.

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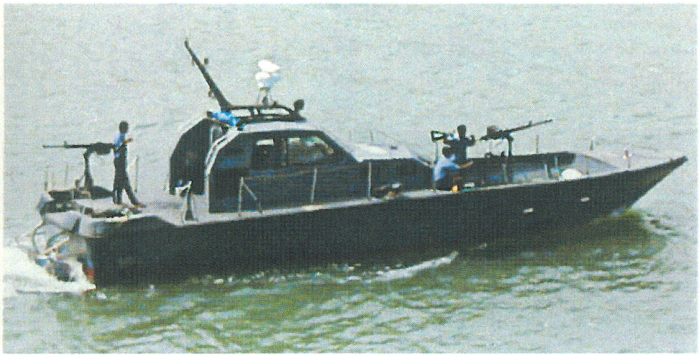

INSHORE PATROL CRAFT *6/2003*, A Sharma* / 0570993

4 INSHORE PATROL CRAFT (TYPE BSM) (PBR)

P 145-147 **P 149**

Displacement, tons: 3.5 full load
Dimensions, feet (metres): 42 × 8 × 1.6 *(12.8 × 2.4 × 0.5)*
Main machinery: 2 outboard motors; 280 hp *(209 kW)*
Speed, knots: 30
Complement: 9
Guns: 1—12.7 mm MG.

Comment: Acquired in 1988 from Blue Star Marine. Similar to *P 111* but with outboard engines. *P 150* was mined and sunk in August 1991, *P 143* sunk in 1995.

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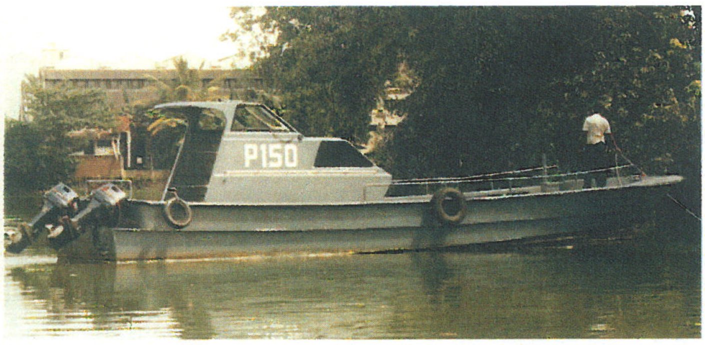

INSHORE PATROL CRAFT *1989, Sri Lanka Navy* / 0080709

4 INSHORE PATROL CRAFT (TYPE CME) (PBR)

P 110-113

Displacement, tons: 5 full load
Dimensions, feet (metres): 44 × 9.8 × 1.6 *(13.4 × 3 × 0.5)*
Main machinery: 2 Yamaha D 343 diesels; 730 hp(m) *(544 kW)* sustained; 2 shafts
Speed, knots: 26
Complement: 5
Guns: 1—12.7 mm MG.
Radars: Surface search: Furuno FR 1941; I-band.

Comment: Built by Consolidated Marine Engineers, Sri Lanka. First nine delivered in 1988; four more in 1992 and two more in 1994. Most of these craft have been destroyed.

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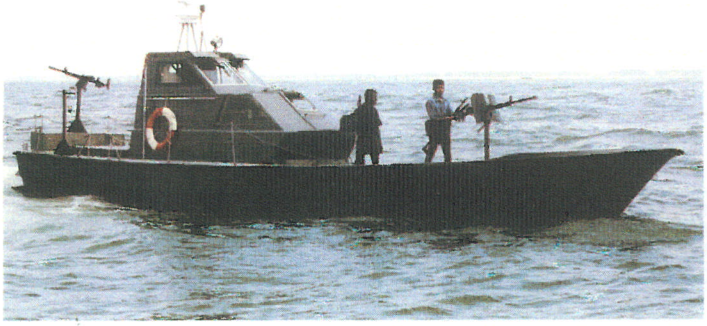

P 111 *6/2003*, Sri Lanka Navy* / 0570986

AMPHIBIOUS FORCES

1 YUHAI (WUHU-A) (TYPE 074) CLASS (LSM)

Name	*No*	*Builders*	*Commissioned*
SHAKTHI	L 880	China	22 May 1996

Displacement, tons: 799 full load
Dimensions, feet (metres): 191.6 × 34.1 × 8.9 *(58.4 × 10.4 × 2.7)*
Main machinery: 2 MAN 8 L 20/27 diesels; 4,900 hp(m) *(3.6 MW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 1,000 at 12 kt
Complement: 60
Military lift: 150 tons
Guns: 10—14.5 mm/93 (5 twin) MGs. 6—12.7 mm MGs.
Radars: Navigation: Racal Decca; I-band.

Comment: Transferred by lift ship from China arriving 13 December 1995. A planned second of class was built but not acquired.

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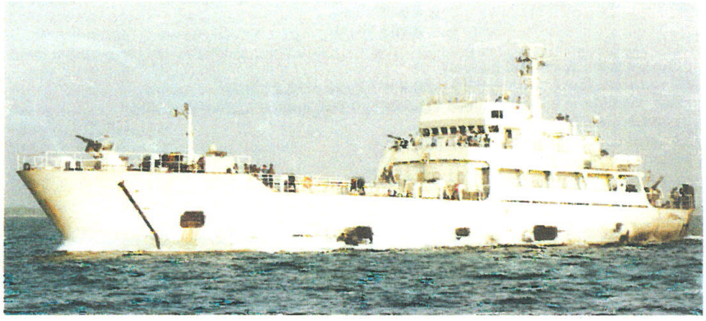

SHAKTHI *5/1996, Sri Lanka Navy* / 0080710

2 LANDING CRAFT (LCM)

Name	*No*	*Builders*	*Commissioned*
RANAGAJA	L 839	Colombo Dockyard	15 Nov 1991
RANAVIJAYA	L 836	Colombo Dockyard	21 July 1994

Displacement, tons: 268 full load
Dimensions, feet (metres): 108.3 × 26 × 4.9 *(33 × 8 × 1.5)*
Main machinery: 2 Caterpillar diesels; 1,524 hp *(1.14 MW)*; 2 shafts
Speed, knots: 8. **Range, miles:** 1,800 at 8 kt
Complement: 28 (2 officers)
Guns: 4 China 14.5 mm (2 twin) *(Ranagaja)* or 2 Oerlikon 20 mm. 2—12.7 mm MGs.
Radars: Navigation: Furuno FCR 1421; I-band.

Comment: Two built in 1983 and acquired in October 1985. Third of the class taken over by the Navy in September 1991 and a fourth in March 1992. *Kandula* sank in October 1992 and the hulk was salvaged in mid-December. *Pabbatha* sank in action in February 1998.

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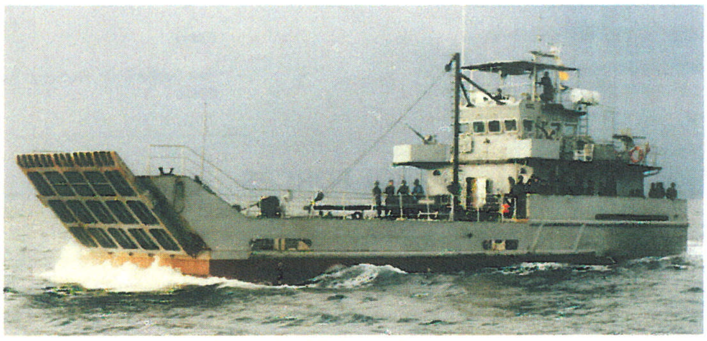

RANAGAGA *1992* / 0080711

2 YUNNAN CLASS (TYPE 067) (LCU)

L 820 **L 821**

Displacement, tons: 135 full load
Dimensions, feet (metres): 93.8 × 17.7 × 4.9 *(28.6 × 5.4 × 1.5)*
Main machinery: 2 diesels; 600 hp(m) *(441 kW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 500 at 10 kt
Complement: 22 (2 officers)
Military lift: 46 tons
Guns: 2—14.5 mm (1 twin) MGs.
Radars: Surface search: Fuji; I-band.

Comment: First one acquired from China in May 1991, second in May 1995.

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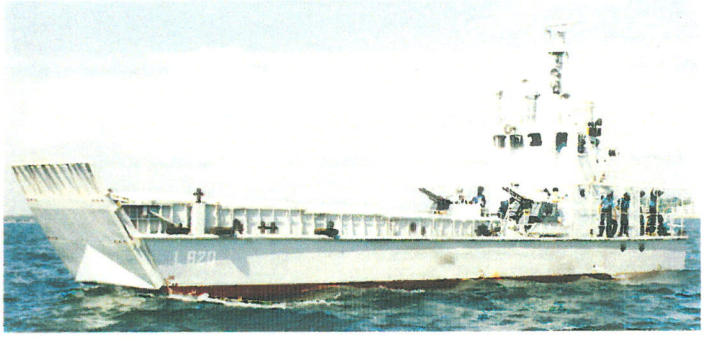


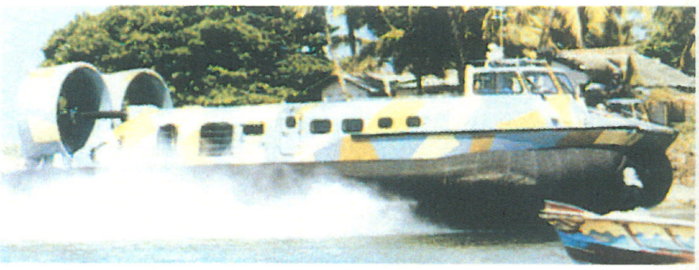
L 820 *1992, Sri Lanka Navy* / 0080713

1 M 10 CLASS HOVERCRAFT (UCAC)

A 530

Displacement, tons: 18 full load
Dimensions, feet (metres): 67.6 × 28.9 *(20.6 × 8.8)*
Main machinery: 2 Deutz diesels; 1,050 hp(m) *(772 kW)*
Speed, knots: 40; 7 with cushion deflated. **Range, miles:** 600 at 30 kt
Complement: 10
Military lift: 56 troops or 20 troops plus 2 vehicles
Guns: 1—12.7 mm MG.
Radars: Navigation: Furuno; I-band.

Comment: Acquired from ABS Hovercraft/Vosper Thornycroft in April 1998 and designated a Utility Craft Air Cushion (UCAC). Has a Kevlar superstructure. More may be ordered in due course.
UPDATED



A 530 *4/1998, ABS Hovercraft* / 0033561

3 FAST PERSONNEL CARRIERS (LCP)

Name	*No*	*Builders*	*Commissioned*
HANSAYA (ex-*Offshore Pioneer*)	A 540	Sing Koon Seng, Singapore	20 Dec 1987
—	A 542	—	—
—	A 543	—	—

Displacement, tons: 154 full load
Dimensions, feet (metres): 98.4 × 36.8 × 7.7 *(30 × 11.2 × 2.3)*
Main machinery: 2 Paxman Vega 12 diesels; 1,800 hp(m) *(1.32 MW)*; 2 shafts
Speed, knots: 30
Complement: 15 (2 officers)
Military lift: 60 tons; 120 troops
Guns: 1 Oerlikon 20 mm. 2—12.7 mm MGs.
Radars: Navigation: Furuno FR 1012; I-band.

Comment: A 540 acquired in January 1986 from Aluminium Shipbuilders. Catamaran hull built as oil rig tender. Now used as fast transport. A 542-543 acquired in 2000. A 541 decommissioned in 2002.
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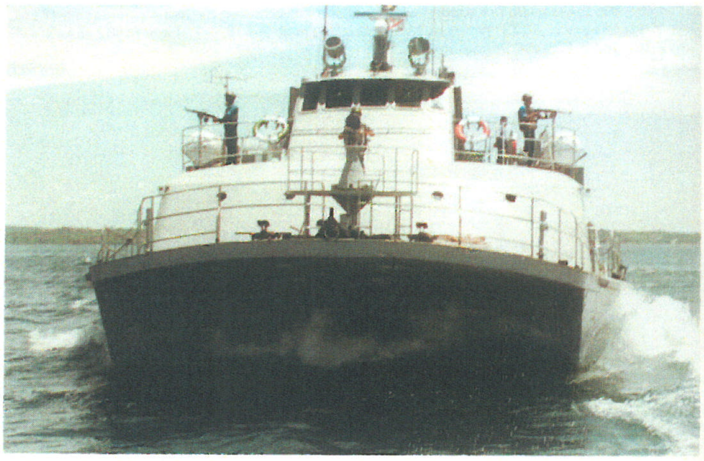


HANSAYA
2001, Sri Lanka Navy / 0130145

Sudan

Country Overview

The Republic of Sudan is situated in north-eastern Africa. The largest country in Africa, it has an area of 967,500 square miles and is bordered to the north by Egypt, to the east by Eritrea and Ethiopia, to the south by Kenya, Uganda and the Democratic Republic of the Congo and to the west by the Central African Republic, Chad, and Libya. It has a 459 n mile coastline with the Red Sea. Khartoum is the capital and largest city and Port Sudan is the principal port. There are about 2,867 n miles of navigable waterways. Territorial waters (12 n miles) are claimed. An EEZ has not been claimed.

Headquarters Appointments

Commander, Naval Forces:
Brigadier Abbas al-Sayyid Uthman

Personnel

(a) 2004: 1,300 officers and men
(b) Voluntary service

Establishment

The Navy was established in 1962 to operate on the Red Sea coast and on the River Nile.

Bases

Port Sudan (HQ). Flamingo Bay (Red Sea), Khartoum (Nile), Kosti (Nile).

General

The Navy has received Iranian assistance in the past but has low budgetary priority. Occasional patrols on the Nile have been observed but activity levels are very low.

DELETIONS

Patrol Forces

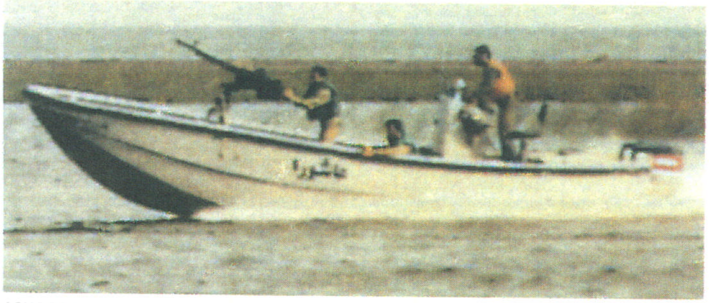
Kadir Karari

PATROL FORCES

8 ASHOORA I CLASS (INSHORE PATROL CRAFT) (PBR)

Displacement, tons: 3 full load
Dimensions, feet (metres): 26.6 × 8 × 1.6 *(8.1 × 2.4 × 0.5)*
Main machinery: 2 Yamaha outboards; 400 hp(m) *(294 kW)*
Speed, knots: 42
Complement: 2
Guns: 1—7.62 mm MG.

Comment: Acquired from Iran in 1992-94. Based at Flamingo Bay but operational status is doubtful.
VERIFIED



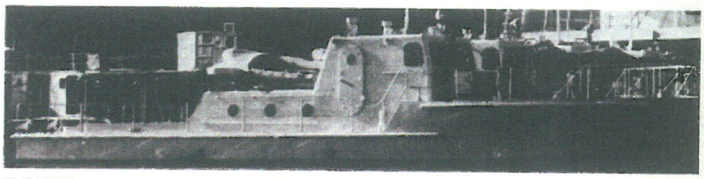
ASHOORA I *1992, IRI Marine Industries* / 0080715

4 KURMUK (TYPE 15) CLASS (INSHORE PATROL CRAFT) (PBR)

KURMUK 502 **QAYSAN** 503 **RUMBEK** 504 **MAYOM** 505

Displacement, tons: 19.5 full load
Dimensions, feet (metres): 55.4 × 12.8 × 2.3 *(16.9 × 3.9 × 0.7)*
Main machinery: 2 diesels; 330 hp(m) *(243 kW)*; 2 shafts
Speed, knots: 16. **Range, miles:** 160 at 12 kt
Complement: 6
Guns: 1 Oerlikon 20 mm; 2—7.62 mm MGs.

Comment: Delivered by Yugoslavia on 18 May 1989 for operations on the White Nile. All may be operational at Khartoum.
VERIFIED



KURMUK *1989, G Jacobs*

4 SEWART CLASS (INSHORE PATROL CRAFT) (PBR)

MAROUB 1161 **FIJAB** 1162 **SALAK** 1163 **HALOTE** 1164

Displacement, tons: 9.1 full load
Dimensions, feet (metres): 40 × 12.1 × 3.3 *(12.2 × 3.7 × 1)*
Main machinery: 2 GM diesels; 348 hp *(260 kW)*; 2 shafts
Speed, knots: 31
Complement: 6
Guns: 1—12.7 mm MG.

Comment: Transferred by Iranian Coast Guard in 1975. All are based at Flamingo Bay but operational status is doubtful.
VERIFIED

AUXILIARIES

Notes: (1) In addition there are two small miscellaneous support ships. *Baraka* 21 a water boat, and a Rotork 512 craft. Both restored with Iranian assistance.
(2) Five Type II LCVPs were delivered from Yugoslavia in 1991 and are based at Kosti.

2 SUPPLY SHIPS (AFL)

SOBAT 221 **DINDER** 222

Displacement, tons: 410 full load
Dimensions, feet (metres): 155.1 × 21 × 7.5 *(47.3 × 6.4 × 2.3)*
Main machinery: 3 Gray Marine diesels; 495 hp *(369 kW)*; 3 shafts
Speed, knots: 9
Complement: 15
Guns: 1 Oerlikon 20 mm. 2—12.7 mm MGs.

Comment: Two Yugoslav 'MFPD' class LCTs transferred in 1969. Used for transporting ammunition, petrol and general supplies.
VERIFIED

Suriname

Country Overview

Formerly known as Dutch Guiana, the Republic of Surinam gained full independence in 1975. With an area of 63,037 square miles it has borders to the east with French Guiana, to the west with Guyana and to the south with Brazil; its 208 n mile coastline is on the Atlantic Ocean. The capital, largest city and chief port is Paramaribo. Territorial seas (12 n miles) and a fisheries zone (200 n miles) are claimed. There are further ports at Nieuw-Nickerie, Moengo, Paranam and Smalkalden. Territorial waters (12 n miles) are claimed. A 200 n mile Exclusive Economic Zone (EEZ) has also been claimed but the limits are not defined.

Personnel

2004: 240 (25 officers)

Bases

Kruktu Tere

Aircraft

Two CASA C-212-400 Aviocar aircraft acquired for maritime patrol in 1998/99.

PATROL FORCES

3 RODMAN 101 CLASS (PB)

JARABAKKA P 01 **SPARI** P 02 **GRAMORGU** P 03

Displacement, tons: 72 full load
Dimensions, feet (metres): 98.4 × 19.4 × 4.3 *(30.0 × 5.9 × 1.3)*
Main machinery: 2 MTU 12V 2000 diesels; 2,900 hp *(2.16 MW)* sustained; 2 Hamilton 571 water-jets
Speed, knots: 26. **Range, miles:** 800 at 12 kt
Complement. 9
Guns: 1—40 mm grenade launcher.
Radars: Surface search: 2 Furuno; I-band.

Comment: Ordered in December 1997, from Rodman, Vigo. First one delivered in February 1999, second and third on 3 July 1999. Carry a RIB with twin outboards. Operational status doubtful.
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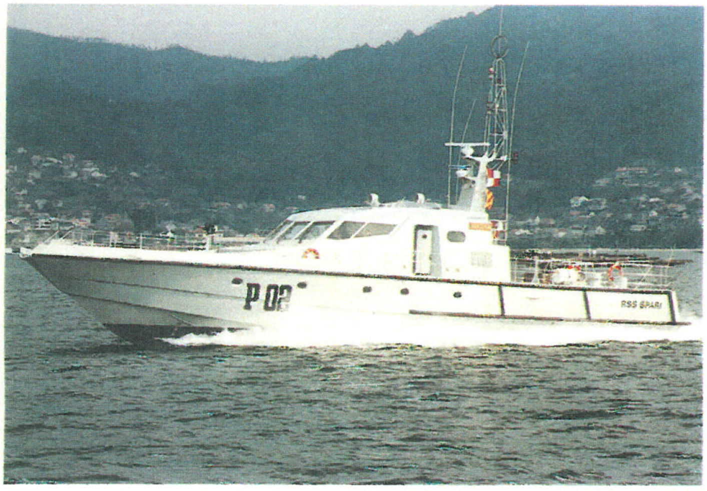

SPARI *9/1999, A Campanera i Rovira* / 0080716

5 RODMAN 55M CLASS (PBR)

P 04-08

Displacement, tons: 16 full load
Dimensions, feet (metres): 57.1 × 12.8 × 2.3 *(17.4 × 3.9 × 0.7)*
Main machinery: 2 MAN D2848-LXE diesels; 1,360 hp(m) *(1 MW)* sustained; 2 Hamilton water-jets
Speed, knots: 35. **Range, miles:** 500 at 25 kt
Complement: 7
Guns: 1—12.7 mm MG.
Radars: Surface search: Furuno; I-band.

Comment: Ordered in December 1997 from Rodman, Vigo. First one delivered in October 1998, remainder in April 1999. Carry a RIB with a single outboard engine. Operational status doubtful.
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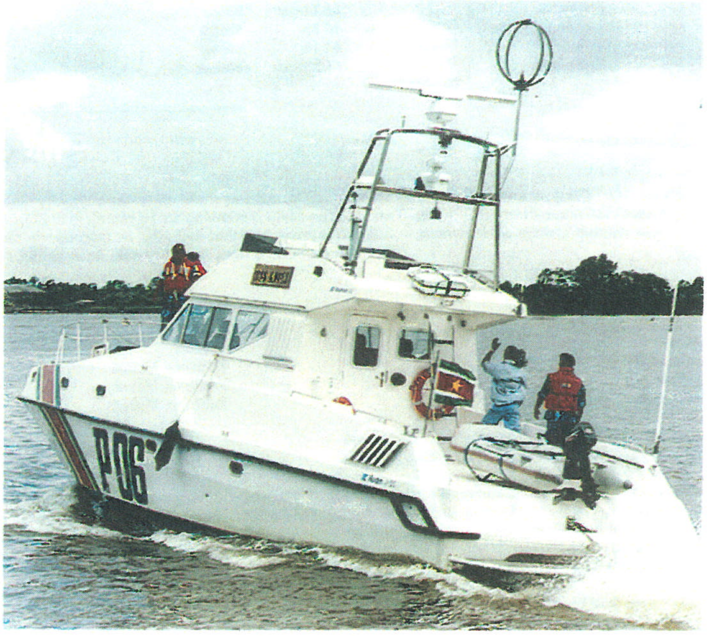

P 06
4/1999 / 0080717

Sweden
SVENSKA MARINEN

Country Overview

The Kingdom of Sweden is a constitutional monarchy occupying the eastern part of the Scandinavian Peninsula. With an area of 173,730 square miles, it is bordered to the north and west by Norway and to the north-east by Finland. It has a 1,740 n mile coastline with the Gulf of Bothnia, the Baltic Sea, the Öresund, Kattegatt, and Skagerrak. The country comprises the mainland and the islands of Gotland and Öland in the Baltic Sea. The capital and largest city is Stockholm which is also a leading port. Others include Göteborg, Malmö and Norrköping. Territorial seas (12 n miles) and an EEZ (200 n miles) are claimed.

Headquarters Appointments

Inspector General of the Navy:
Rear Admiral Jörgen Ericsson

Diplomatic Representation

Defence Attaché in London and Dublin:
Colonel Frank Fredriksson
Naval Attaché in Moscow:
Commander Tage Andersson
Naval Attaché in Washington:
Colonel Göran Boijsen
Defence Attaché in Paris:
Lt Col Bertil Olson
Defence Attaché in Oslo:
Colonel Tommy Johansson
Defence Attaché in Singapore:
Captain Lennart Månsson
Navl Attaché in Berlin:
Colonel Mats Hansson
Defence Attaché in Canberra:
Commander Rolf Löthman

Diplomatic Representation *— continued*

Defence Attaché in Sarajevo:
Colonel Per-Ove Eriksson
Defence Attaché in Santiago:
Colonel Thomas Karlsson
Defence Attaché in Helsinki:
Colonel Ossi Koukkula
Defence Attaché in Athens and Budapest:
Colonel Peter Backland
Defence Attaché in Rome and Bern:
Colonel Lars-Gunnar Nilsson
Defence Attaché in Riga:
Colonel Ulf Persson
Defence Attaché in Warsaw:
Colonel Krister Edvardsson
Defence Attaché in Pretoria:
Colonel Lars Ljung
Defence Attaché in Ankara:
Colonel Håkan Swedin
Defence Attaché in Vienna:
Lieutenant Colonel Lars-Gunnar Sjölin

Coast Defence

The Amphibious Corps is divided into two amphibious regiments and is the basis for the Amphibious Brigade. The Amphibious Brigade consists of three amphibious battalions with 800 troops divided into two Coast Ranger Companies, one Mortar Company (81 mm) and one Amphibious Company with remote-controlled mines, underwater surveillance systems and short-range land-sea missiles (RBS 17 Hellfire). Each Amphibious Battalion has 35 combat boat 90H, 13 Combat Boat 90E, four small tenders, 26 group landing craft and 19 Klepper collapsible kayaks.

Organisation

The Navy consists of the Fleet and the Amphibious Corps (ex-Coastal Artillery). The Navy has one submarine flotilla, two surface flotillas, one MCM flotilla, two amphibious regiments, two naval bases, one naval school and one amphibious school.

Personnel

(a) 2004: 8,140 including 2,500 officers, 540 civilians, 2,500 reserve officers and 2,600 national servicemen
(b) 10-17¼ months' national service

Bases

Muskö (Stockholm), Karlskrona.

Strength of the Fleet

Type	*Active*	*Building (Planned)*
Submarines—Patrol	7	—
Missile Corvettes	6	5
Fast Attack Craft—Missile	8	—
Inshore Patrol Craft	13	—
Minelayers/Command Ship	1	—
MCM Support Ship	1	—
Minelayers—Coastal	6	—
Minelayers—Small	5	—
Minesweepers/Hunters—Coastal	7	—
Minesweepers—Inshore	5	—
Sonobuoy Craft	4	—
LCMs	20	—
Survey Ships	2	—
Electronic Surveillance Ship	1	—
Transport Ships	4	—
Repair and Support Ships	10	—

DELETIONS

Submarines

2001	*Näcken* (to Denmark)

Patrol Forces

2002	*Lulgå, Halmstad, Jägaren, Dalarö, Sandhamm, Östhammar*
2003	*Väktaren, Snapphanen, Nynäshamn, Piteå, Ekeskär, Skifteskär, Gråskär, Altaskär, Hojskär, Bredskär, Hamnskär*

Mine Warfare Forces

2001	*Kalvsund,* M 510
2002	*Skramsösund*

Auxiliaries

2002	*Utö*
2003	26 LCU, *Urd, Hercules*

PENNANT LIST

Corvettes

K 11	Stockholm
K 12	Malmö
K 21	Göteborg
K 22	Gävle
K 23	Kalmar
K 24	Sundsvall
K 31	Visby
K 32	Helsingborg
K 33	Härnösand (bldg)
K 34	Nyköping (bldg)
K 35	Karlstad (bldg)

Patrol Forces

P 159	Kaparen
P 162	Spejaren
P 163	Styrbjörn
P 164	Starkodder
P 165	Tordön
P 166	Tirfing
R 131	Norrköping
R 142	Ystad
77	Huvudskär
81	Tapper
82	Djärv
83	Dristig
84	Händig
85	Trygg
86	Modig
87	Hurtig
88	Rapp
89	Stolt
90	Ärlig
91	Munter
92	Orädd

Mine Warfare Forces

M 04	Carlskrona
M 11	Styrsö
M 12	Spårö
M 13	Skaftö
M 14	Sturkö
M 33	Viksten
M 71	Landsort
M 72	Arholma
M 73	Koster
M 74	Kullen
M 75	Vinga
M 76	Ven
M 77	Ulvön
MRF 01	Sökaren
MUL 12	Arkösund
MUL 13	Kalmarsund
MUL 15	Grundsund
MUL 18	Fårösund
MUL 19	Barösund
MUL 20	Furusund
B 01	Ejdern
B 02	Krickan
B 03	Svärtan
B 04	Viggen

Auxiliaries

A 201	Orion
A 212	Ägir
A 213	Nordanö
A 214	Belos III
A 241	Urd
A 247	Pelikanen
A 248	Pingvinen
A 251	Achilles
A 253	Hermes
A 262	Skredsvik
A 265	Visborg
A 270	Trossö
A 271	Gålö
A 322	Heros
A 324	Hera
A 343	Sleipner
A 344	Loke

Training ships

M 67	Nämndö
S 01	Gladan
S 02	Falken

SUBMARINES

Notes: The 'Viking' submarine project is being taken forward as a bilateral programme by Sweden and Denmark following the withdrawal of Norway (which retains observer status) at the end of Project Definition Phase (PDP) Step 1 on 13 June 2003. Following an 18 month PDP Step 2, the contract for which was signed on 6 October 2003, decisions on whether to progress to the manufacturing stage will be made in 2005. It is envisaged that there will be an order for six submarines, of which the Swedish requirement is for two boats to be delivered from 2010. The programme is open for other nations as observers and possible candidates are Singapore and Poland.

3 GOTLAND (A 19) CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
GOTLAND	–	Kockums, Malmö	20 Nov 1992	2 Feb 1995	2 Sep 1996
UPPLAND	–	Kockums, Malmö	14 Jan 1994	9 Feb 1996	1 May 1997
HALLAND	–	Kockums, Malmö	21 Oct 1994	27 Sep 1996	1 Oct 1997

Displacement, tons: 1,494 surfaced; 1,599 dived
Dimensions, feet (metres): 198.2 × 20.3 × 18.4 *(60.4 × 6.2 × 5.6)*
Main machinery: Diesel-stirling-electric; 2 MTU diesels; 2 Kockums V4-275R Stirling AIP; 204 hp(m) *(150 kW)*; 1 Jeumont Schneider motor; 1 shaft; LIPS prop
Speed, knots: 10 surfaced; 20 dived
Complement: 27 (5 officers)

Torpedoes: 4—21 in *(533 mm)* bow tubes; 12 FFV Type 613/62; anti-surface; wire-guided; passive homing to 20 km *(10.8 n miles)* at 45 kt; warhead 240 kg or Bofors Type 62 (2000); wire-guided; active/passive homing to 50 km *(27 n miles)* at 20-50 kt; warhead 250 kg. Swim-out discharge. 2—15.75 in *(400 mm)* bow tubes; 6 Swedish Ordnance Type 432/451; anti-submarine; wire-guided; active/passive homing to 20 km *(10.8 n miles)* at 25 kt; warhead 45 kg. Shaped charge or a small charge anti-intruder version.
Mines: 12 Type 47 swim-out mines in lieu of torpedoes.
Countermeasures: ESM: Racal THORN Manta S; radar warning.
Weapons control: CelsiusTech IPS-19 (Sesub 940A); TFCS.
Radars: Navigation: Terma Scanter; I-band.
Sonars: STN/Atlas Elektronik CSU 90-2; hull-mounted; bow, flank and intercept arrays; passive search and attack.

Programmes: In October 1986 a research contract was awarded to Kockums for a design to replace the 'Sjöormen' class. Ordered on 28 March 1990.

Structure: The design has been developed on the basis of the Type A 17 series but this class is the first to be built with Air Independent Propulsion as part of the design. This type of AIP runs on liquid oxygen and diesel in a helium environment. Space has been reserved to fit two more V4-275R engines in due course. Single electro-optic periscope. The periscope is the only hull penetrating mast. Anechoic coatings are being applied. The four 21 in torpedo tubes are mounted over the smaller 15.75 in tubes. The smaller tubes can be tandem-loaded with two torpedoes per tube.
Operational: Reported as being able to patrol at 5 kt for several weeks without snorting. The Type 47 mine swims out to a predetermined position before laying itself on the bottom.

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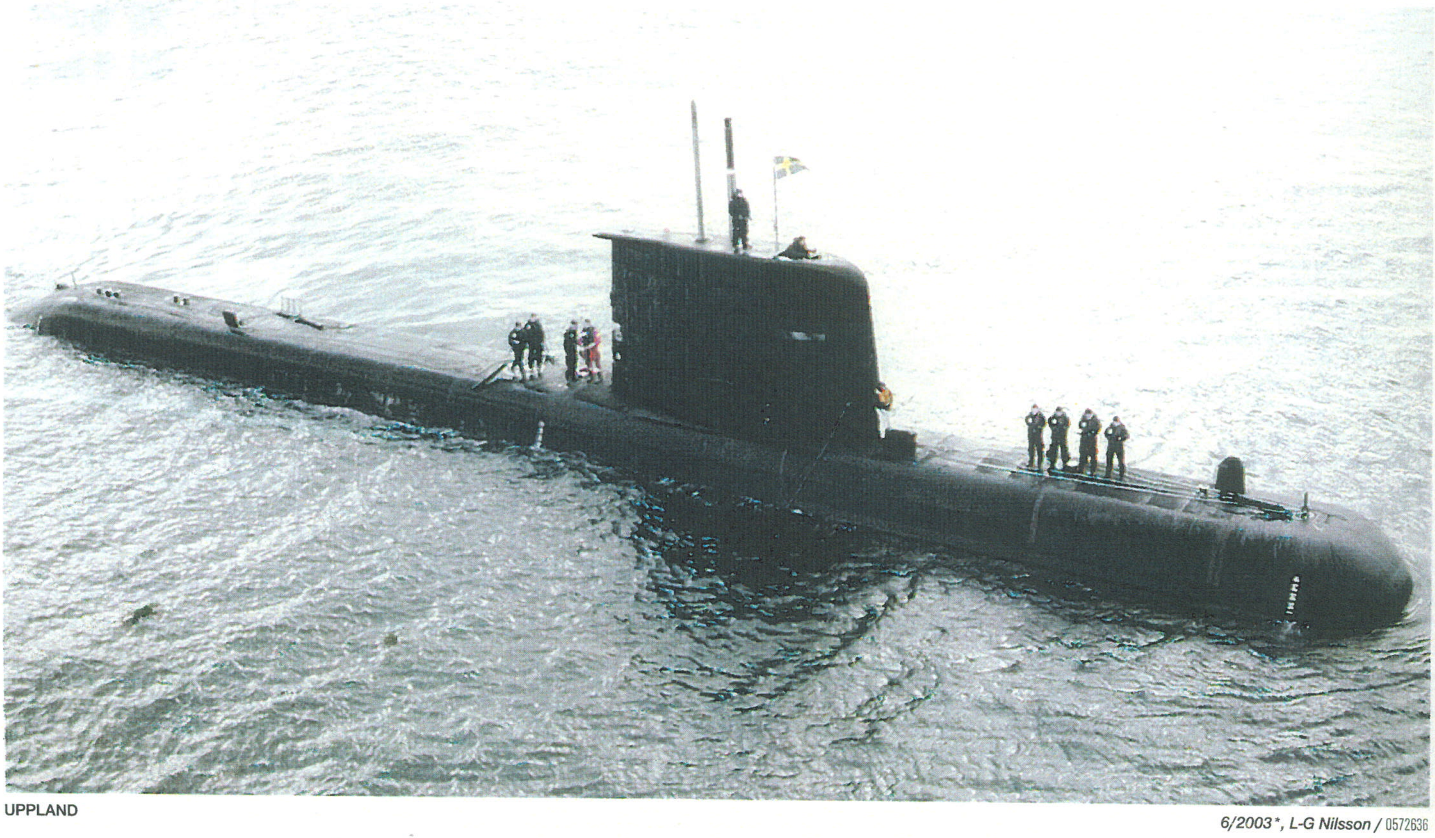

UPPLAND

*6/2003**, L-G Nilsson / 0572636

2 VÄSTERGÖTLAND (A 17) CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
VÄSTERGÖTLAND	–	Kockums, Malmö	10 Jan 1983	17 Sep 1986	27 Nov 1987
HÄLSINGLAND	–	Kockums, Malmö	1 Jan 1984	31 Aug 1987	20 Oct 1988

Displacement, tons: 1,070 surfaced; 1,143 dived
Dimensions, feet (metres): 159.1 × 20 × 18.4 *(48.5 × 6.1 × 5.6)*

Main machinery: Diesel-electric; 2 Hedemora V12A/15 diesels; 2,200 hp(m) *(1.62 MW)*; 1 Jeumont Schneider motor; 1,800 hp(m) *(1.32 MW)*; 1 shaft; LIPS prop

Speed, knots: 10 surfaced; 20 dived
Complement: 27 (5 officers)

Torpedoes: 6—21 in *(533 mm)* tubes. 12 FFV Type 613; anti-surface; wire-guided; passive homing to 20 km *(10.8 n miles)* at 45 kt; warhead 240 kg. Swim-out discharge.
3—15.75 in *(400 mm)* tubes. 6 FFV Type 431/451; anti-submarine; wire-guided; active/passive homing to 20 km *(10.8 n miles)* at 25 kt; warhead 45 kg shaped charge or a small charge anti-intruder version is available.
Mines: 12 Type 47 swim-out mines in lieu of torpedoes.
Countermeasures: ESM: Argo AR-700-S5; or Condor CS 3701; intercept.
Weapons control: Ericsson IPS-17 (Sesub 900A) TFCS.
Radars: Navigation: Terma; I-band.
Sonars: Atlas Elektronik CSU 83; hull-mounted; passive search and attack; medium frequency.
Flank array; passive search; low frequency.

Programmes: Design contract awarded to Kockums, Malmö on 17 April 1978. Contract for construction of these boats signed 8 December 1981. Kockums built midship section and carried out final assembly while Karlskrona built bow and stern sections. A second pair of boats have been upgraded with AIP propulsion.
Structure: Single hulled with an X type rudder/after hydroplane design. Reported that SSM were considered but rejected as non-cost-effective weapons in the context of submarine operations in the Baltic. Equipped with Pilkington Optronics CK 38 electro-optic search periscope, enhanced with night vision capability. Diving depth 300 m *(984 ft)*. Anechoic coating.
Operational: Expected to be placed in reserve once *Södermanland* and *Östergötland* return to service.

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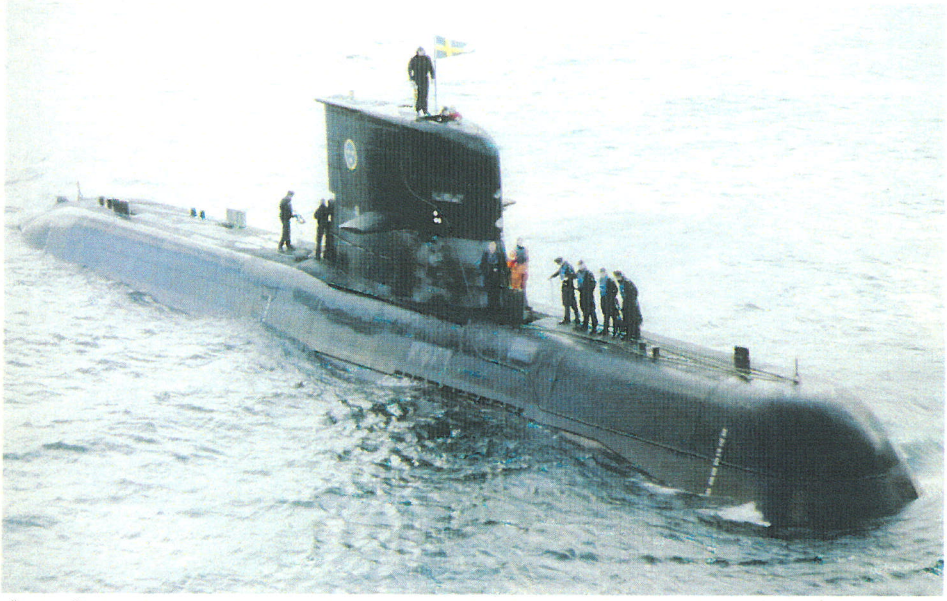
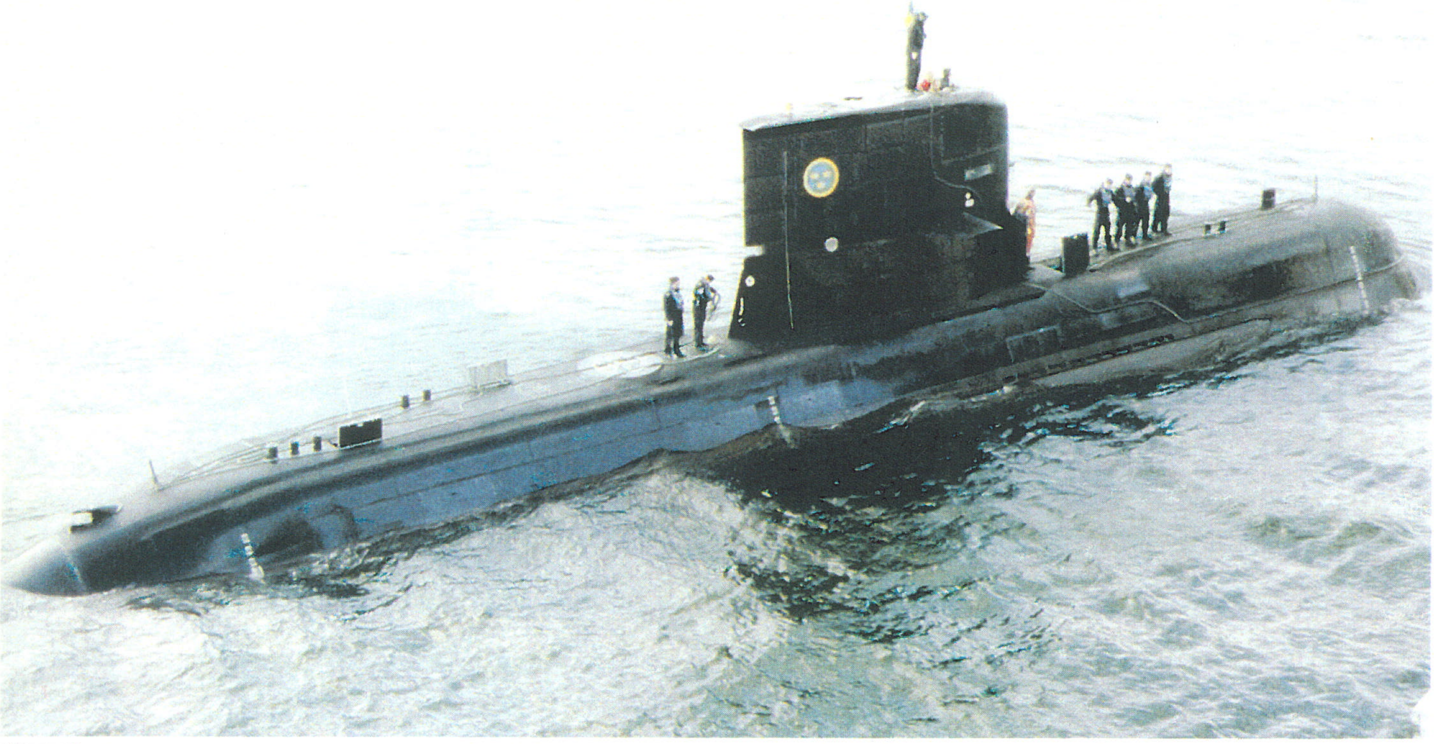
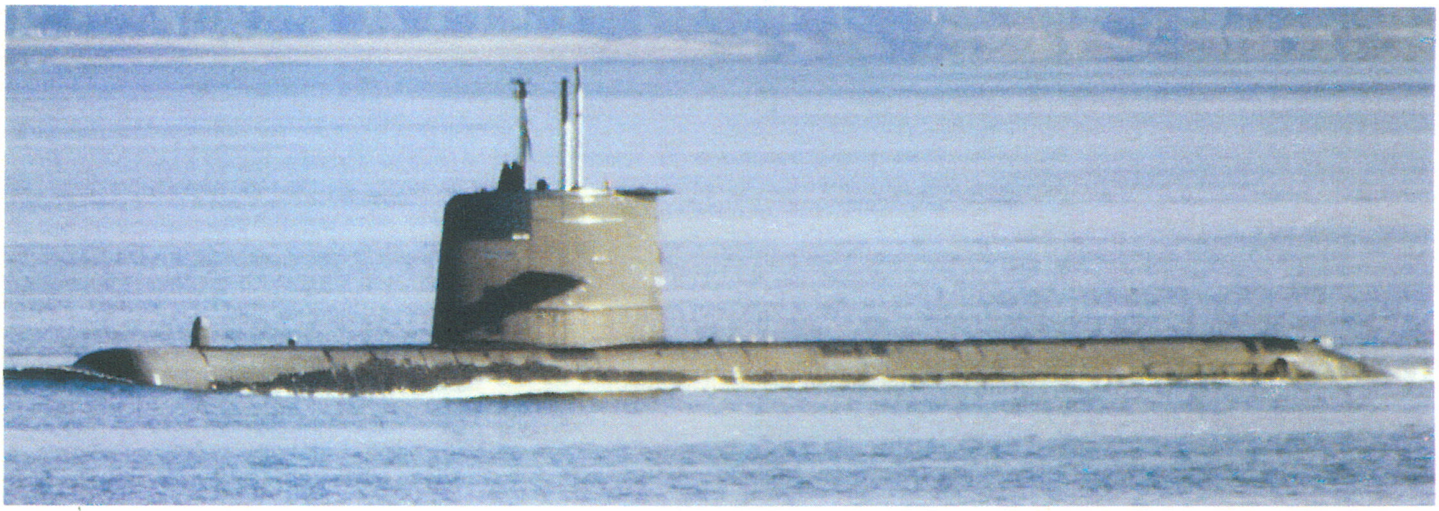


VÄSTERGÖTLAND *6/2003*, E & M Laursen* / 0572635



VÄSTERGÖTLAND *6/2003*, E & M Laursen* / 0572634



HÄLSINGLAND *6/2003*, H M Steele* / 0572640

2 SÖDERMANLAND (A 17) CLASS (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SÖDERMANLAND	–	Kockums, Malmö	2 Feb 1985	12 Apr 1988	21 Apr 1989
ÖSTERGÖTLAND	–	Kockums, Malmö	15 Oct 1985	9 Dec 1988	10 Jan 1990

Displacement, tons: 1,500 surfaced; 1,600 dived
Dimensions, feet (metres): 198.5 × 20 × 18.4 *(60.5 × 6.1 × 5.6)*
Main machinery: Diesel-Stirling-electric; 2 Hedemora V12A/15 diesels; 2,200 hp(m) *(1.62 MW)*; 2 Kockums Stirling Mk III AIP; 204 hp *(150 kW)*; 1 Jeumont Schneider motor; 1,800 hp (m) *(1.32 MW)*; 1 shaft; LIPS prop
Speed, knots: 10 surfaced; 20 dived
Complement: 27 (5 officers)

Torpedoes: 6–21 in *(533 mm)* tubes. 12 FFV Type 613; anti-surface; wire-guided; passive homing to 20 km *(10.8 n miles)* at 45 kt; warhead 240 kg. Swim-out discharge.
3–15.75 in *(400 mm)* tubes. 6 FFV Type 431/451; anti-submarine; wire-guided; active/passive homing to 20 km *(10.8 n miles)* at 25 kt; warhead 45 kg shaped charge or a small charge anti-intruder version is available.
Mines: 12 Type 47 swim-out mines in lieu of torpedoes.
Countermeasures: ESM: Argo AR-700-S5; or Condor CS 3701; intercept.
Weapons control: Ericsson IPS-17 (Sesub 900A) TFCS.
Radars: Navigation: Terma; I-band.
Sonars: Atlas Elektronik CSU 83; hull-mounted; passive search and attack; medium frequency.
Flank array; passive search; low frequency.

Programmes: Design contract awarded to Kockums, Malmö on 17 April 1978. Contract for construction of these boats signed 8 December 1981. Kockums built midship section and carried out final assembly while Karlskrona built bow and stern sections.
Modernisation: Modernised variants of the 'Västergötland' class. Mid-life refit of *Södermanland* began at Kockums in late 2000 and included the installation of Air Independent Propulsion (Stirling Mk 3 AIP) by the insertion of a 12 m plug in the pressure hull. Other work included the installation of a pressurised diver's lock-out in the base of the sail to facilitate special forces operations. The refit also included a new climate control system. Thales Optronics CK 038 periscope has been upgraded with a thermal imaging camera and an improved image intensifier. Communications may be upgraded in the future to improve interoperability.
Structure: Single hulled with an X type rudder/after hydroplane design. Diving depth 300 m *(984 ft)*. Anechoic coating.

SÖDERMANLAND *9/2003*, Kockums* / 0572614

Operational: *Södermanland* relaunched on 8 September 2003 and, after six-months sea trials, is to return to service in mid-2004, *Östergötland* is undergoing similar upgrade and, after relaunch in mid-2004 is expected to return to service in early 2005.

NEW ENTRY

1 MIDGET SUBMARINE (SSW)

SPIGGEN II

Displacement, tons: 17 dived
Dimensions, feet (metres): 34.8 × 5.6 × 4.6 *(10.6 × 1.7 × 1.4)*
Main machinery: 1 Volvo Penta diesel; 1 shaft
Speed, knots: 5 dived; 6 surfaced
Complement: 4

Comment: Built by Försvarets Materielverk and commissioned on 19 June 1990. Has an endurance of 14 days and a diving depth of 100 m *(330 ft)*, and is used as a target for ASW training. Refitted by Kockums and back in service in December 1996.

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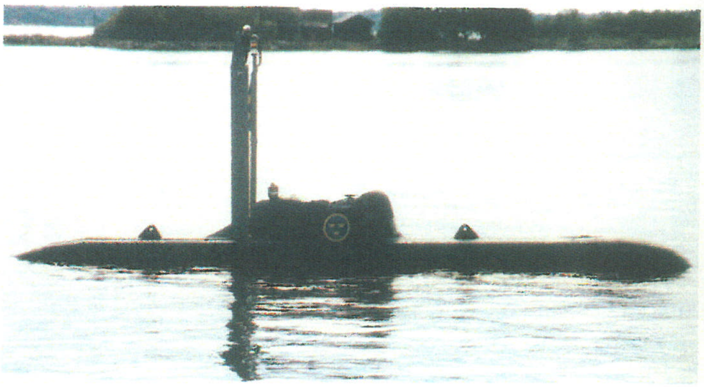

SPIGGEN II
8/1998, Per Körnefeldt / 0050201

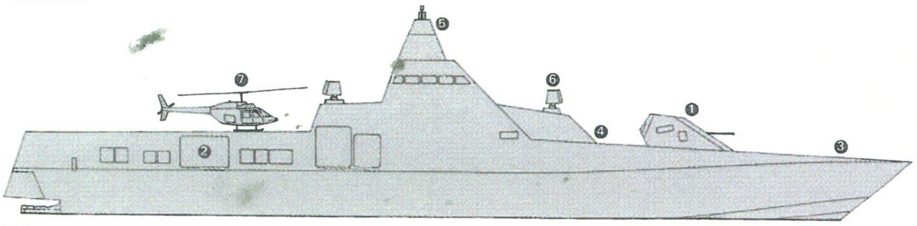
CORVETTES

0 + 5 VISBY CLASS (FSGH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
VISBY	K 31	Karlskronavarvet	Dec 1996	8 June 2000	Jan 2005
HELSINGBORG	K 32	Karlskronavarvet	June 1997	27 June 2003	July 2005
HÄRNÖSAND	K 33	Karlskronavarvet	Dec 1997	21 Apr 2004	Jan 2006
NYKÖPING	K 34	Karlskronavarvet	June 1998	Sep 2004	July 2006
KARLSTAD	K 35	Karlskronavarvet	Dec 1999	Nov 2005	Jan 2007

Displacement, tons: 620 full load
Dimensions, feet (metres): 236.2 × 34.1 × 8.2 *(72 × 10.4 × 2.5)*
Main machinery: CODOG; 4 AlliedSignal TF 50A gas turbines; 21,760 hp(m) *(16 MW)*; 2 MTU 16V N90 diesels; 3,536 hp (m) *(2.6 MW)*; 2 Kamewa 125 water-jets; bow thruster
Speed, knots: 35; 15 (diesels)
Complement: 43 (6 officers)

Missiles: SSM: 8 RBS 15 Mk II (Batch 2) inertial guidance; active radar homing to 110 km *(54 n miles)* at 0.8 Mach; warhead 150 kg.
Guns: 1 Bofors 57 mm/70 SAK Mk 3 ❶. 220 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg.
Torpedoes: 4 fixed 400 mm tubes ❷. Type 43/45 anti-submarine.
A/S mortars: Saab Alecto 601 127 mm rocket-powered grenades ❸; range 1,200 m.
Mines: Can be carried.
Countermeasures: Decoys: Chaff launcher ❹. Decoys can also be fired from the ASW mortar.
MCMV: STN Atlas Seafox Combat (C) sonar/TV sensor; range 500 m at 6 kt; shaped charge.
ESM/ECM: Condor Systems CS 701; intercept and jammer.
Combat data systems: CelsiusTech 9LV Mk 3E CETRIS with Link.
Weapons control: Optronic director.
Radars: Air/surface search: Ericsson Sea Giraffe AMB 3D ❺; G-band.
Surface search: CelciusTech Pilot; I-band.
Fire control: CEROS 200 Mk 3 ❻; I/J-band.



VISBY *(Scale 1 : 600), Ian Sturton* / 0131371

Sonars: Computing Devices Canada (CDC) Hydra; bow mounted active high frequency plus passive towed array and VDS active.

Helicopters: 1 Agusta A 109M ❼.

Programmes: Order for first two with an option for two more on 17 October 1995. Second pair ordered 17 December 1996 and third pair in mid-1999. However, due to cost overruns, order reduced on 9 October 2001 to five ships.
Structure: Stealth features developed from the trials vessel *Smyge* but without the twin hull design for which this ship was considered too large. A hangar for the helicopter is included. The hull is of Fibre Reinforced Plastic used in a sandwich construction and the superstructure is covered with RAM. A Double Eagle ROV with active sonar is carried in the MCM role as well as expendable mini torpedoes for mine countermeasures. There is provision for a SAM system to be installed.
Operational: The first of class, was launched at Karlskrona shipyard on 8 June 2000 but delays in outfitting schedule led to 10-month slippage of contractor's sea trials until 7 December 2001. Initially, ships fitted with 57 mm gun, A/S mortars and torpedo tubes. The combat system installed from late 2002 followed by trials from late 2003. *Visby* is planned to enter operational service in early 2005 followed by the other ships at six-month intervals. The first helicopter-fitted ship is to be *Härnösand*.

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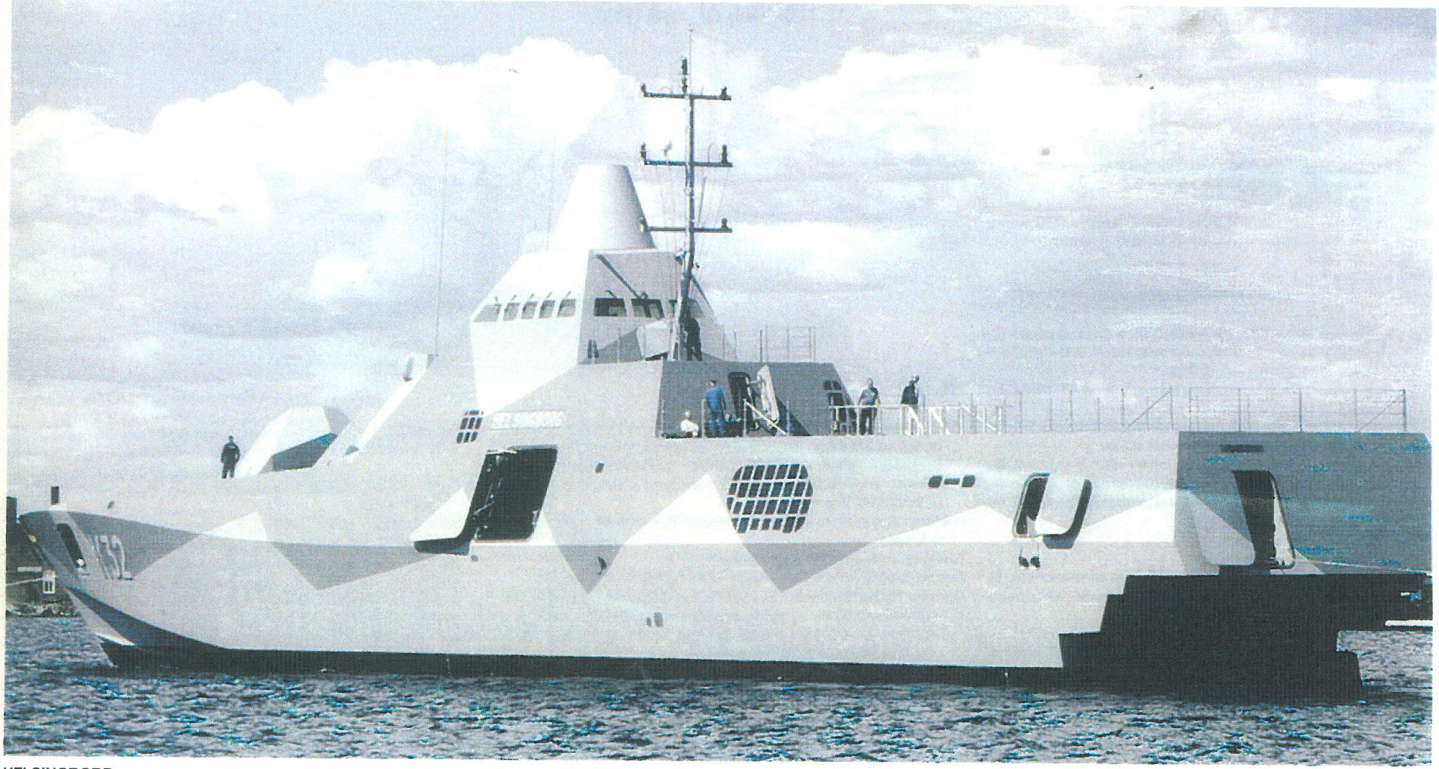
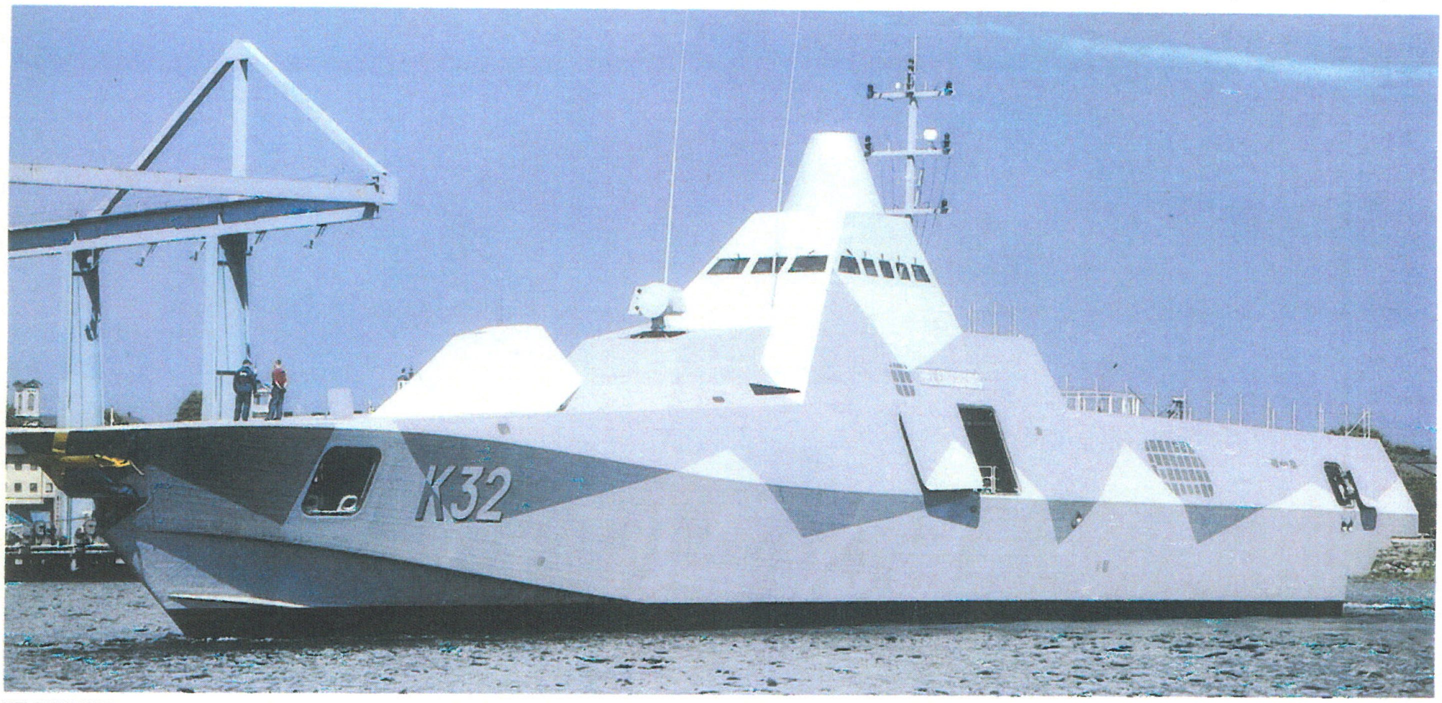


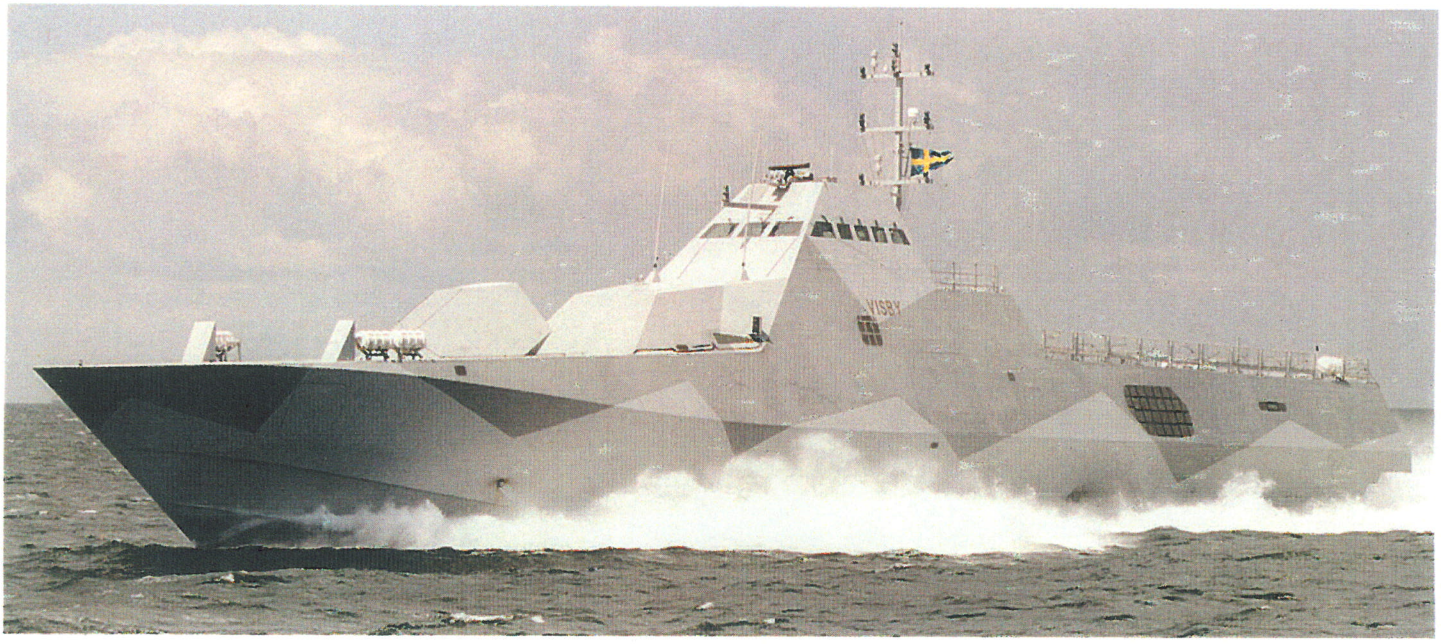
HELSINGBORD

6/2003, L-G Nilsson* / 0572616



HELSINGBORD

6/2003, L-G Nilsson* / 0576438



VISBY

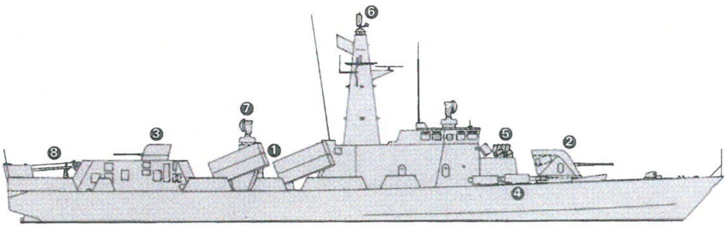
6/2002, Michael Nitz / 0525009

4 GÖTEBORG CLASS (FSG)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
GÖTEBORG	K 21	Karlskronavarvet	10 Feb 1987	14 Apr 1989	15 Feb 1990
GÄVLE	K 22	Karlskronavarvet	21 Mar 1988	23 Mar 1990	1 Feb 1991
KALMAR	K 23	Karlskronavarvet	21 Nov 1988	1 Nov 1990	1 Sep 1991
SUNDSVALL	K 24	Karlskronavarvet	20 Nov 1989	29 Nov 1991	7 July 1993

Displacement, tons: 300 standard; 399 full load
Dimensions, feet (metres): 187 × 26.2 × 6.6 *(57 × 8 × 2)*
Main machinery: 3 MTU 16V 396 TB94 diesels; 8,700 hp(m) *(6.4 MW)* sustained; Kamewa 80562-6 water-jets. Bow thruster in K 22
Speed, knots: 30
Complement: 36 (7 officers) plus 4 spare berths

Missiles: SSM: 8 Saab RBS 15 Mark II (4 twin) launchers ❶; inertial guidance; active radar homing to 110 km *(59.4 n miles)* at 0.8 Mach; warhead 150 kg.
Guns: 1 Bofors 57 mm/70 Mk 2 ❷; 220 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg.
1 Bofors 40 mm/70 (stealth dome in K 22) ❸; 330 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
Torpedoes: 4—15.75 in *(400 mm)* tubes can be fitted ❹. Swedish Ordnance Type 43/45; anti-submarine.
A/S mortars: 4 Saab 601 ❺ 9-tubed launchers; range 1,200 m; shaped charge.
Depth charges: On mine rails.
Mines: Minelaying capability.
Countermeasures: Decoys: 4 Philips Philax fixed launchers; IR flares and chaff grenades. A/S mortars have also been adapted to fire IR/chaff decoys.
ESM: Condor; intercept.
Combat data systems: CelsiusTech 9LV Mk 3 SESYM. Datalink.



GÄVLE *(Scale 1 : 600), Ian Sturton* / 0131370

Weapons control: 2 Bofors Electronics 9LV 200 Mk 3 Sea Viking or Signaal IRST (K 24) optronic directors. Bofors Electronics 9LV 450 GFCS. RC1-400 MFCS. 9AU-300 ASW control system with AQS 928G/SM sonobuoy processor. Bofors 9EW 400 EW control.
Radars: Air/surface search: Ericsson Sea Giraffe 150 HC ❻; G-band.
Navigation: Terma PN 612; I-band
Fire control: 2 Bofors Electronics 9GR 400 ❼; I/J-band.
Sonars: Hydra multisonar system (K 22) ❽; bow-mounted active high-frequency plus passive towed array and active VDS.
Thomson Sintra TSM 2643 Salmon (K 21, K 23-24); VDS; active search; medium frequency.
Simrad SA 950; hull-mounted; active attack.
STN Atlas passive towed array; low frequency.

Programmes: Ordered 1 December 1985 as replacements for 'Spica I' class.
Modernisation: *Gävle* refitted to accommodate Hydra towed array/VDS aft and 40 mm gun with stealth dome. Bridge wings removed and topmast modified. Similar upgrade expected for rest of class but timetable has not been confirmed. An IRST director is fitted aft of the mast for trials in K 24.
Structure: Efforts have been made to reduce radar and IR signatures.
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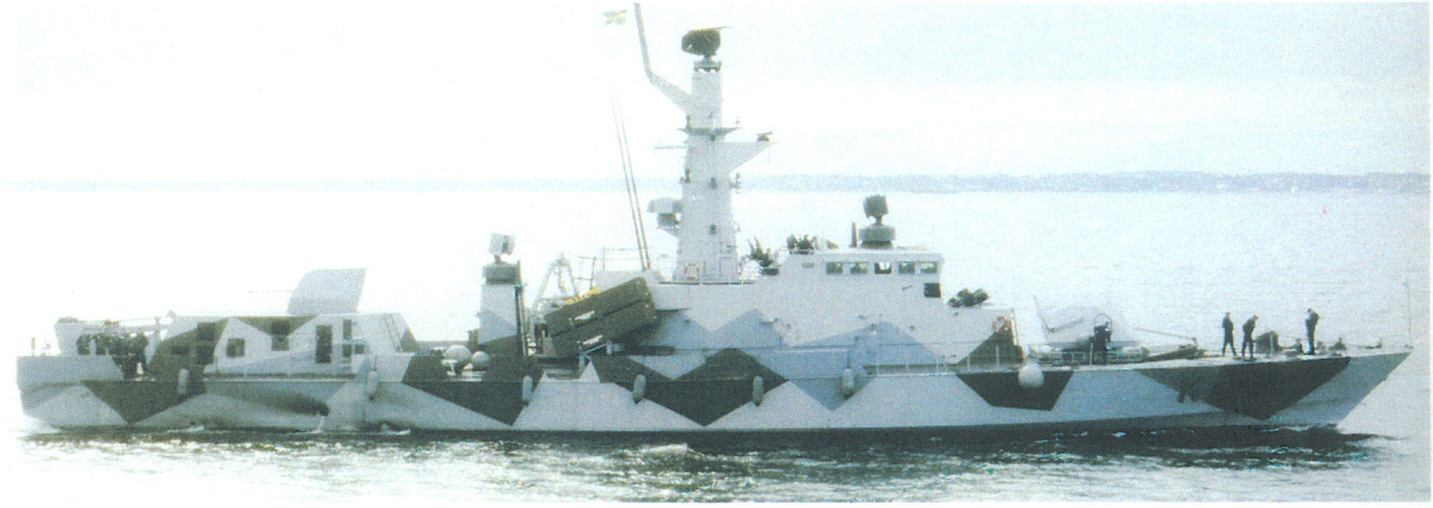
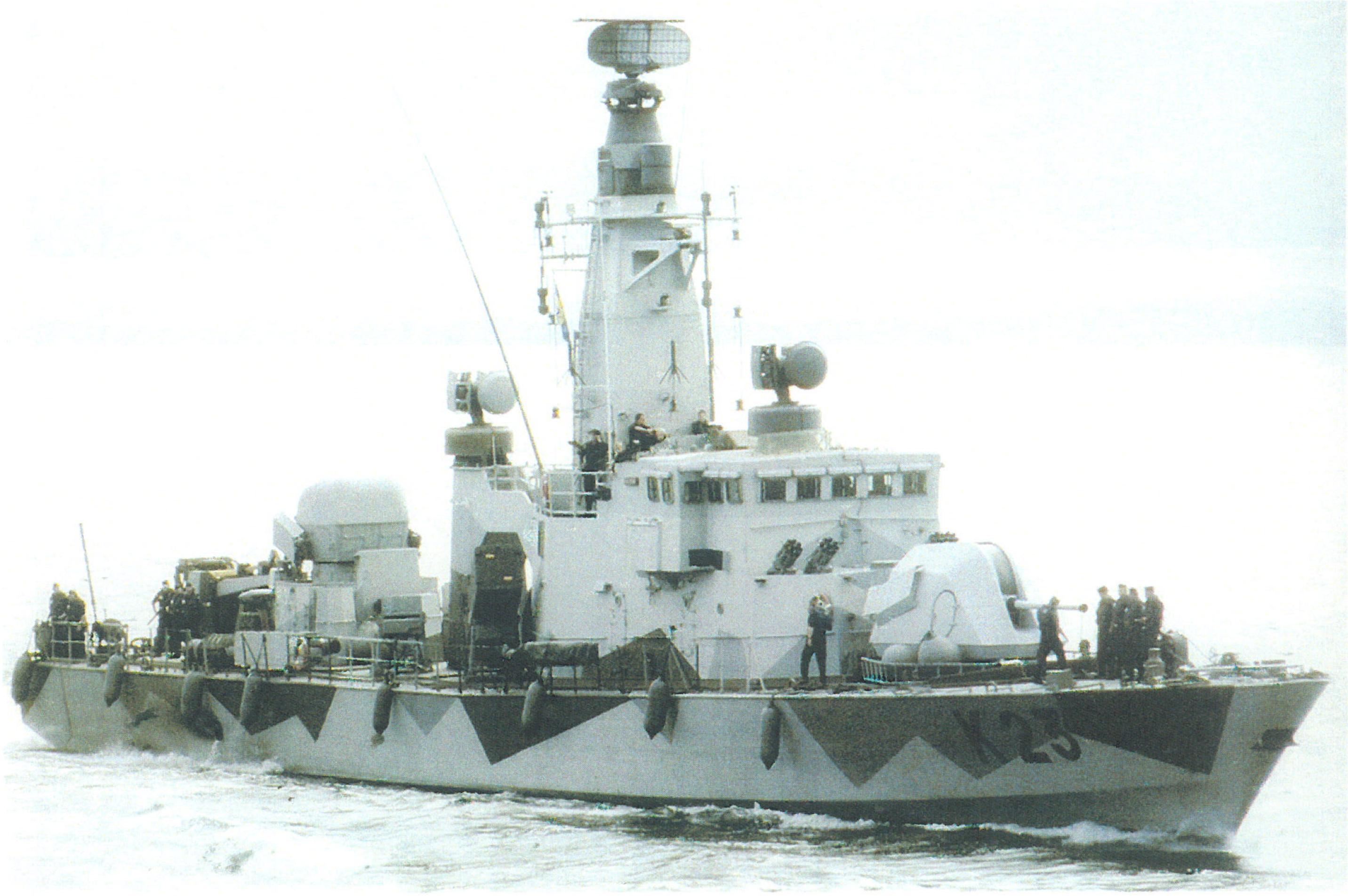


GÄVLE *8/2003*, E & M Laursen* / 0572615



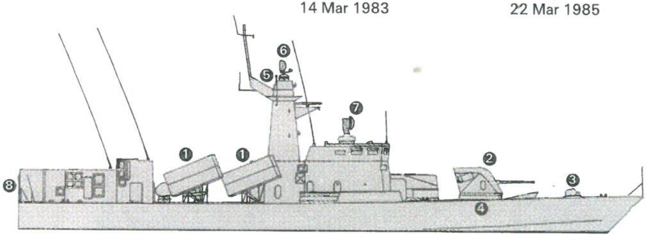
KALMAR *8/2003*, E & M Laursen* / 0572617

2 STOCKHOLM CLASS (FSG)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
STOCKHOLM	K 11	Karlskronavarvet	1 Aug 1982	24 Aug 1984	22 Feb 1985
MALMÖ	K 12	Karlskronavarvet	14 Mar 1983	22 Mar 1985	10 May 1985

Displacement, tons: 350 standard; 372 full load
Dimensions, feet (metres): 164 × 24.6 × 10.8 *(50 × 7.5 × 3.3)*
Main machinery: CODAG; 1 Allied Signal TF50A gas turbine; 5,440 hp(m) *(4.0 MW)* sustained; 2 MTU 16V 396 TB94 diesels; 5,277 hp(m) *(3.9 MW)* sustained; 3 shafts; Kamewa props
Speed, knots: 32 gas; 20 diesel
Complement: 33 (7 officers)

Missiles: SSM: 8 Saab RBS 15 Mk II (4 twin) launchers ❶; inertial guidance; active radar homing to 110 km *(54 n miles)* at 0.8 Mach; warhead 150 kg.
Guns: 1 Bofors 57 mm/70 Mk 2 ❷; 220 rds/min to 13.5 km *(7.3 n miles)*; weight of shell 2.4 kg.
Torpedoes: 4—15.75 in *(400 mm)* tubes; Swedish Ordnance Type 43/45; anti-submarine can be fitted.
A/S mortars: 4 Saab 601 ❸ 9-tubed launchers; range 1,200 m; shaped charge.
Countermeasures: Decoys: 2 quadruple Bofors 57 mm rocket launchers for chaff/illumination ❹.
ESM: Condor CS-5460; intercept and warning.
ECM: to be fitted.
Combat data systems: SAAB Tech 9LV Mk 3E Cetris; datalink
Weapons control: Philips 9LV 300 GFCS including a 9LV 100 optronic director and laser range-finder ❺.



STOCKHOLM *(Scale 1 : 600), Ian Sturton /* 0530053

Radars: Air/surface search: Ericsson Sea Giraffe 50HC ❻; G-band.
Navigation: Terma Scanter; I-band.
Fire control: Philips 9LV 200 Mk 3 ❼; J-band.
Sonars: Simrad SA 950; hull-mounted; active attack.
Thomson Sintra TSM 2642 Salmon ❽; VDS; search; medium frequency.

Programmes: Orders placed in September 1981. Developed from 'Spica II' class.
Modernisation: RBS 15 missile upgraded to Mk II from 1994. Improved A/S mortar fitted in 1998-99. Extensive mid-life upgrade carried out 1999-2002. Modernisation included removal of the 21 in torpedo tubes and the aft 40 mm mounting and modification of the superstructure to reduce radar and IR signatures. The bridge wings have been removed and a pylon mast has replaced a lattice structure. Upgrades include a new propulsion system, combat data system and EW systems. The decoys are situated on either side of the gun turret.
Operational: Both ships are expected to remain in service until 2015.

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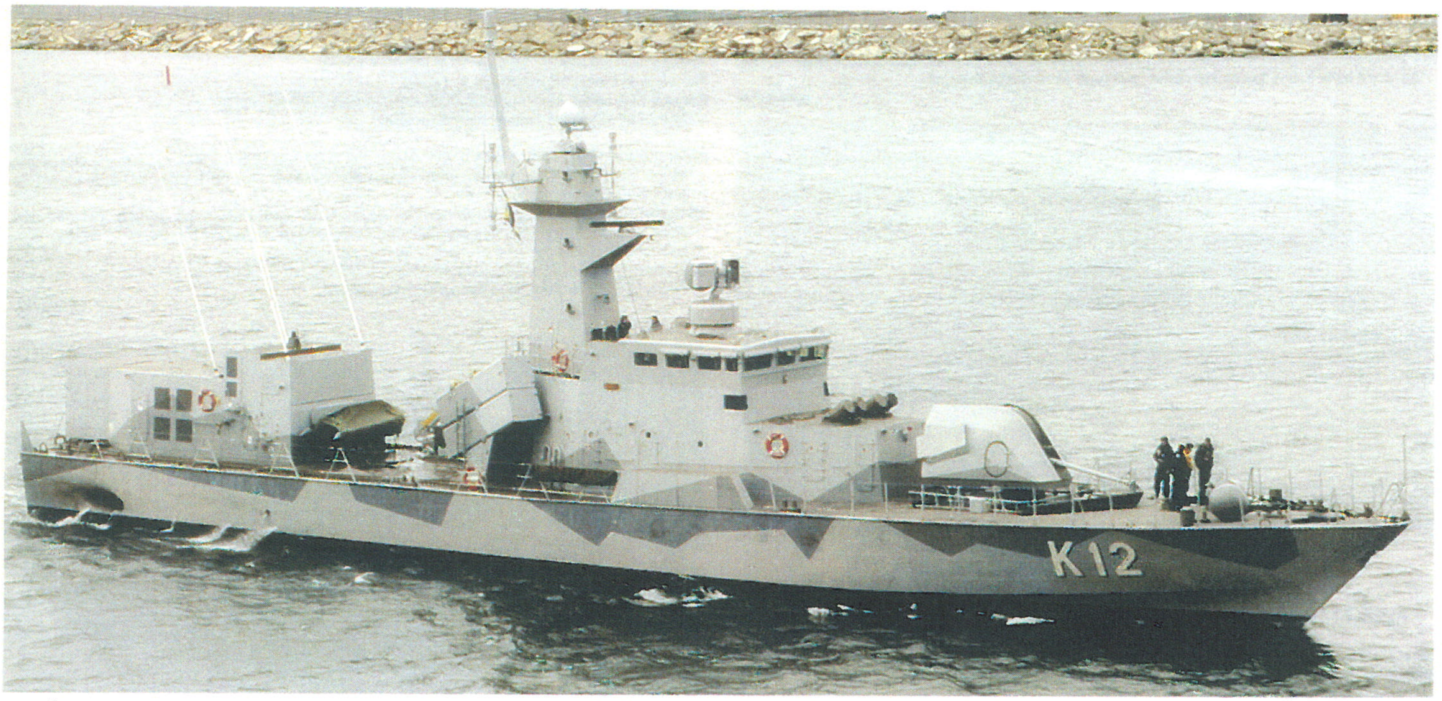
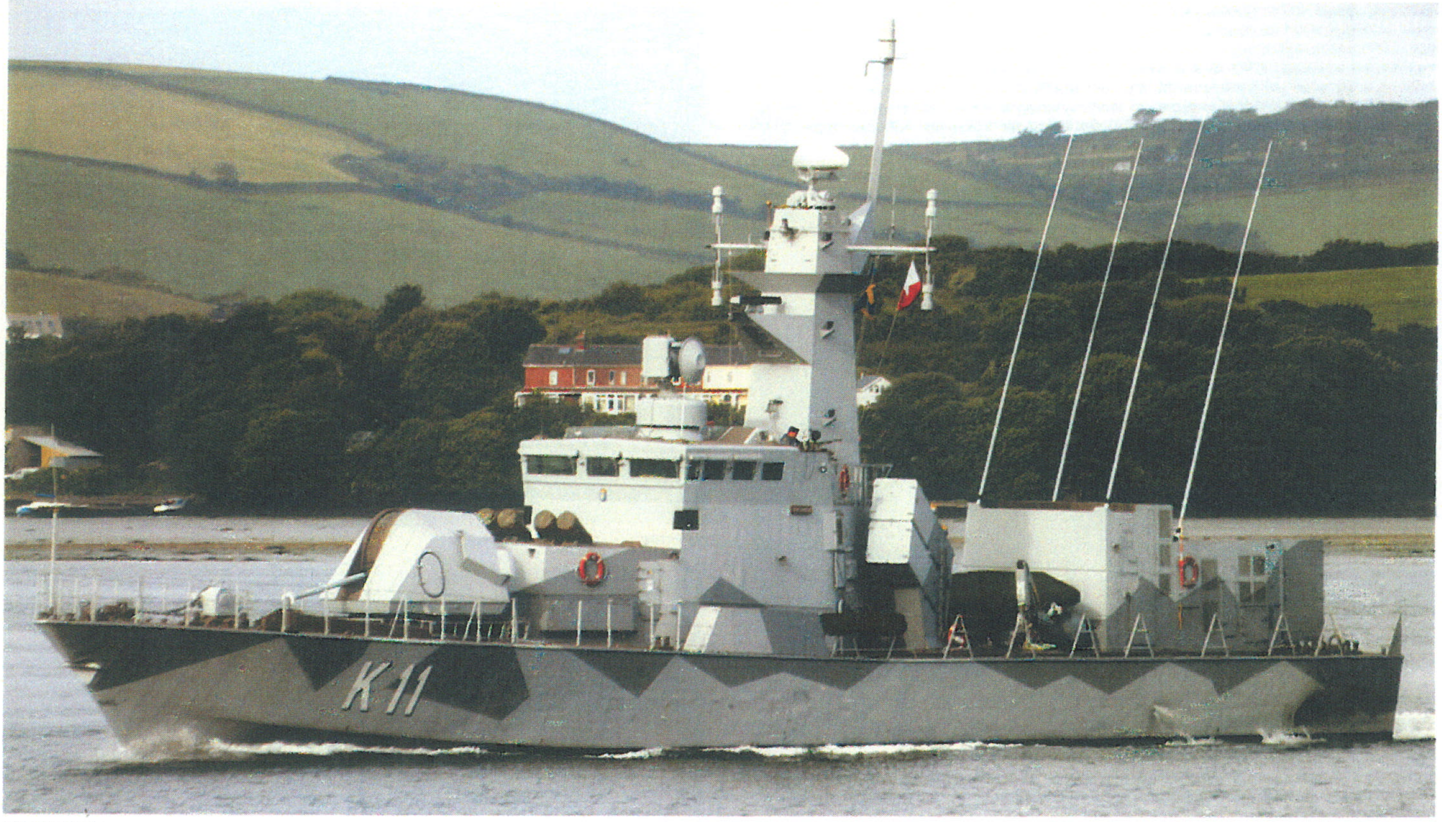


MALMÖ *6/2003*, Per Körnefeldt /* 0572618



STOCKHOLM *6/2003*, B Sullivan /* 0572613

SHIPBORNE AIRCRAFT

Numbers/Type: 8 Agusta A 109M.
Operational speed: 152 kt *(280 km/h).*
Service ceiling: 16,500 ft *(5,029 m).*
Range: 447 n miles *(827 km).*
Role/Weapon systems: Military version of A 109E with Arrius 2K2 engine. Swedish Armed Forces to receive 20 from September 2002 of which eight are to be 'navalised' for operation from 'Visby' class and from shore bases. ASW and ASV roles.

UPDATED

U.S. COAST GUARD

A 109E (USCG livery) *2002, USCG* / 0102391

Numbers/Type: 10 Agusta-Bell 206A JetRanger (HKP-6B).
Operational speed: 115 kt *(213 km/h).*
Service ceiling: 13,500 ft *(4,115 m).*
Range: 368 n miles *(682 km).*
Role/Weapon systems: Operated from shore bases in ASW and surface search roles. To be replaced by A 109M. Weapons: ASW; four Type 11 or depth charges.

VERIFIED

AB 206 *2000, Andreas Karlsson, Swedish Defence image* / 0106563

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: (1) In addition 11 AS 332 Super Puma helicopters are used for SAR.
(2) SH-37 Viggen aircraft are Air Force operated and can be used for maritime strike.

Numbers/Type: 7/7 Boeing 107-II-5/Kawasaki KV 107-II.
All to HKP-4C/D standard.
Operational speed: 137 kt *(254 km/h).*
Service ceiling: 8,500 ft *(2,590 m).*
Range: 300 n miles *(555 km).*
Role/Weapon systems: ASW and surface search helicopter; updated with avionics, TM2D engines, radar, sonar, datalink for SSM targeting, MARIL 920 combat information system. The Nordic Standard helicopter is expected to start replacing these aircraft from 2005. Sensors: BEAB Omera radar, Thomson Sintra DUAV-4 dipping sonar. Weapons: ASW; six Type 11/51 depth charges and/or two Type 45 torpedoes.

VERIFIED

BOEING 107 *8/2002, E & M Laursen* / 0529924

Numbers/Type: 1 CASA C-212 Aviocar.
Operational speed: 190 kt *(353 km/h).*
Service ceiling: 24,000 ft *(7,315 m).*
Range: 1,650 n miles *(3,055 km).*
Role/Weapon systems: For ASW and surface surveillance. Two others belong to the Coast Guard. Sensors: Omera radar, Sonobuoys/Lofar, CDC sonobuoy processor, FLIR, datalink. Weapons: ASW; depth charges.

UPDATED

PATROL FORCES

Notes: The experimental craft *Smyge* V 02 is no longer an operational naval unit.

6 KAPAREN CLASS (FAST ATTACK CRAFT—MISSILE) (PCGF)

Name	*No*	*Builders*	*Commissioned*
KAPAREN	P 159	Bergens MV, Norway	7 Aug 1980
SPEJAREN	P 162	Bergens MV, Norway	21 Mar 1980
STYRBJÖRN	P 163	Bergens MV, Norway	15 June 1980
STARKODDER	P 164	Bergens MV, Norway	24 Aug 1981
TORDÖN	P 165	Bergens MV, Norway	26 Oct 1981
TIRFING	P 166	Bergens MV, Norway	23 Jan 1982

Displacement, tons: 120 standard; 170 full load
Dimensions, feet (metres): 120 × 20.7 × 5.6 *(36.6 × 6.3 × 1.7)*
Main machinery: 2 MTU 16V 396 TB94; 5,800 hp(m) *(4.26 MW)* sustained; 2 shafts; 2 hydraulic motors for slow speed propulsion
Speed, knots: 36. **Range, miles:** 550 at 36 kt
Complement: 22 (3 officers)

Missiles: SSM: 6 Kongsberg Penguin Mk 2; IR homing to 27 km *(14.6 n miles)* at 0.8 Mach; warhead 120 kg.
Guns: 1 Bofors 57 mm/70 Mk 1; 200 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg. 57 mm illuminant launchers on either side of mounting.
Torpedoes: 4—15.75 in *(400 mm)* Swedish Ordnance Type 43/45; anti-submarine.
A/S mortars: 4 Saab Elma 9-tubed launchers; range 400 m; warhead 4.2 kg shaped charge or Saab 601 9-tubed launchers; range 1,200 m; shaped charge.
Depth charges: 2 racks.
Mines: 24. Mine rails extend from after end of bridge superstructure with an extension over the stern. Use of these would mean the removal of missiles in the ratio of 8 mines for each pair of missiles.
ESM: Saab Scania EWS 905; radar intercept.
Radars: Surface search: Skanter 16 in Mk 009; I-band.
Fire control: Philips 9LV 200 Mk 2; J-band.
Sonars: Simrad SA 950; hull-mounted; active attack; high frequency.
Simrad ST 570 VDS; active; high frequency.

Programmes: In the early 1970s it was decided to build fast attack craft similar to the Norwegian 'Hauk' class. Prototype *Jägaren* underwent extensive trials and, on 15 May 1975, an order for a further 16 was placed.
Modernisation: Half-life modernisation between 1991 and 1994. The update included new engines with improved loiter capability and new sonars including the Simrad Toadfish VDS. Saab ASW-601 multibarrel grenade launcher being fitted.
Operational: The VDS can be operated down to 100 m as a dipping sonar, or towed at speeds up to 16 kt. Ten of the class have been decommissioned.

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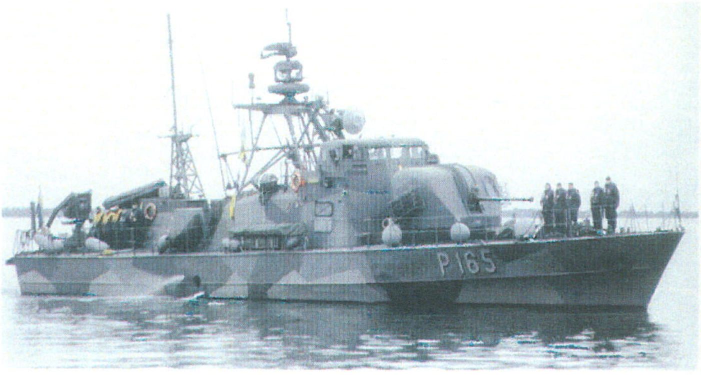
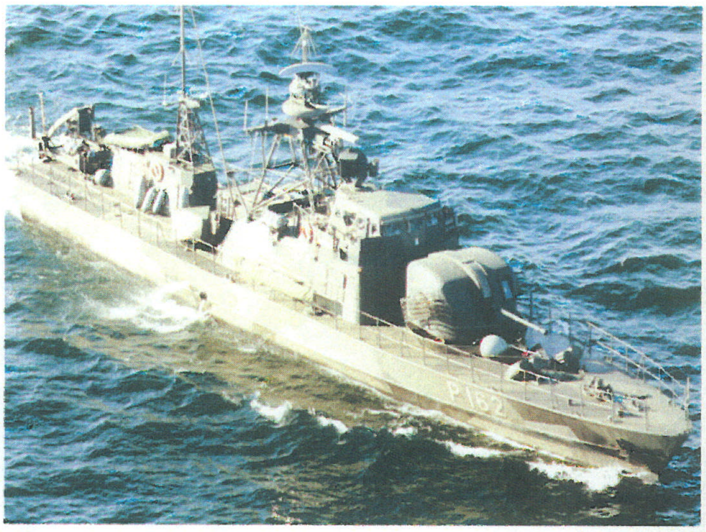


TORDÖN *4/2002, Per Körnefeldt* / 0529923



SPEJAREN *6/2000, Michael Nitz* / 0106565

STYRBJÖRN *4/2003 *, Per Körnefeldt* / 0572620

2 NORRKÖPING CLASS (FAST ATTACK CRAFT—MISSILE) (PTFG)

Name	*No*	*Builders*	*Commissioned*
NORRKÖPING	R 131	Karlskronavarvet	11 May 1973
YSTAD	R 142	Karlskronavarvet	10 Jan 1976

Displacement, tons: 190 standard; 230 full load
Dimensions, feet (metres): 143 × 23.3 × 7.4 *(43.6 × 7.1 × 2.4)*
Main machinery: 3 RR Proteus gas turbines; 12,750 hp *(9.5 MW)* sustained; 3 shafts; Kamewa props
Speed, knots: 40.5. **Range, miles:** 500 at 40 kt
Complement: 27 (7 officers)

Missiles: SSM: 8 Saab RBS 15; active radar homing to 70 km *(37.8 n miles)* at 0.8 Mach; warhead 150 kg.
Guns: 1 Bofors 57 mm/70 Mk 1; 200 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg. 8 launchers for 57 mm illuminants on side of mounting.
Torpedoes: 6—21 in *(533 mm)* tubes (2-6 can be fitted at the expense of missile armament); Swedish Ordnance Type 613; anti-surface; wire-guided passive homing to 15 km *(8.2 n miles)* at 45 kt; warhead 240 kg.
Mines: Minelaying capability.
Countermeasures: Decoys: 2 Philips Philax fixed launchers; IR flares and chaff.
ESM: Argo Systems AR 700 or MEL Susie; radar intercept.
Combat data systems: MARIL 2000 datalink.
Radars: Air/surface search: Ericsson Sea Giraffe 50HC; G/H-band.
Fire control: Philips 9LV 200 Mk 1; J-band.

Modernisation: Programme included missile launchers, new fire-control equipment, modernised electronics and new 57 mm guns. A/S mortars removed. All completed by late 1984. These last six have had some weapon systems upgrading to keep them in service until 2010. All completed by August 1999. The plan to fit new engines has been shelved.
Structure: Similar to the original 'Spica' class from which they were developed.
Operational: The six unmodernised craft have paid off. A further two decommissioned in 2002 and two in 2003. The last two are expected to follow soon.

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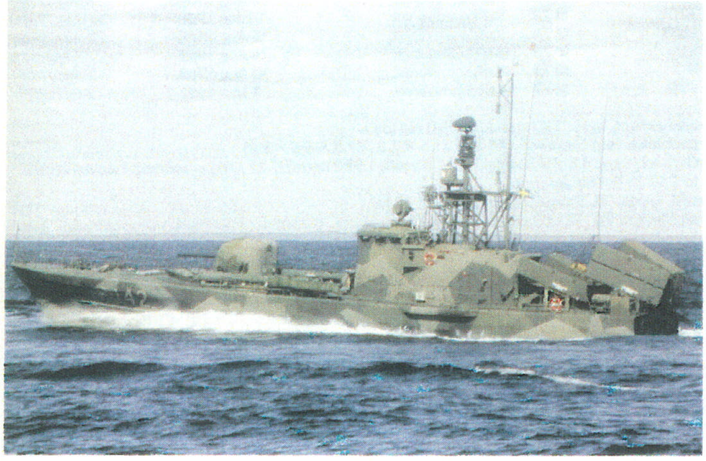

YSTAD *4/2003*, Per Körnefeldt /* 0572621

1 TYPE 72 INSHORE PATROL CRAFT (PBR)

HUVUDSKÄR 77

Displacement, tons: 30 full load
Dimensions, feet (metres): 69.2 × 15 × 4.3 *(21.1 × 4.6 × 1.3)*
Main machinery: 3 diesels; 3 shafts
Speed, knots: 18 *(61-67)*; 22 *(68-77)*
Guns: 1—20 mm.
Depth charges: Carried in all of the class.
Radars: Surface search: Decca RM 914; I-band.
Sonars: Simrad; hull-mounted; active search; high frequency.

Comment: Last remaining vessel of a class built in 1966-67. Modernised in the 1980s with a tripod mast and radar mounted over the bridge.

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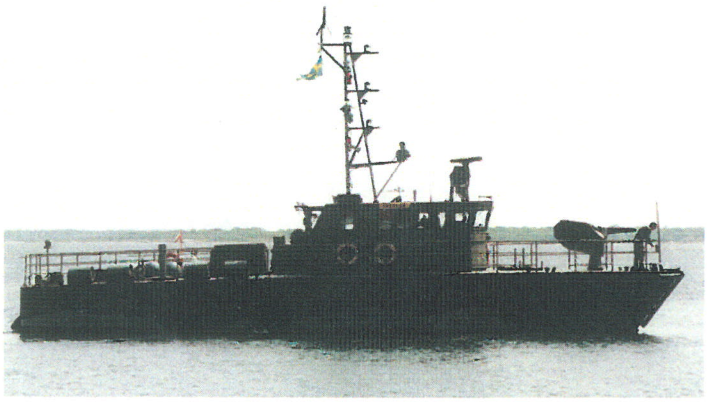

TYPE 72 *6/1994, Curt Borgenstam /* 0080731

12 TAPPER CLASS (PBR)

TAPPER 81
DJÄRV 82
DRISTIG 83
HÄNDIG 84
TRYGG 85
MODIG 86
HURTIG 87
RAPP 88
STOLT 89
ÄRLIG 90
MUNTER 91
ORÄDD 92

Displacement, tons: 57 full load
Dimensions, feet (metres): 71.9 × 17.7 × 4.9 *(21.9 × 5.4 × 1.5)*
Main machinery: 2 MWM TBD234V16 diesels; 1,812 hp(m) *(1.33 MW)* sustained; 2 shafts
Speed, knots: 25
Complement: 9
Guns: 2—12.7 mm MGs.
A/S mortars: 4 Elma/Saab grenade launchers; range 300 m; warhead 4.2 kg shaped charge.
Depth charges: 18.
Mines: 2 rails (in four of the class).
Radars: Surface search: 2 Racal Decca; I-band.
Sonars: Simrad; hull-mounted; active search; high frequency.

Comment: Seven Type 80 ordered from Djupviksvarvet in early 1992, and delivered between February 1993 and December 1995. Five more ordered in 1995 for delivery at six month intervals between December 1996 and January 1999. A Phantom HD-2 ROV is carried. This is equipped with a Tritech ST 525 imaging sonar.

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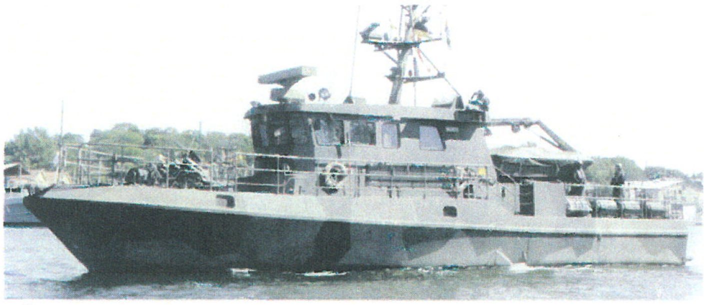
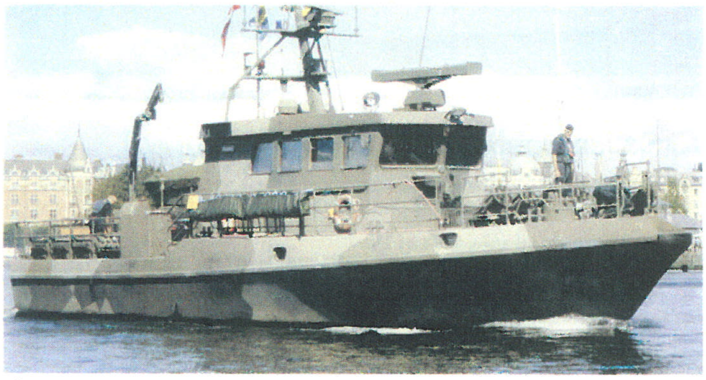


DJÄRV *8/2002, E & M Laursen /* 0529921



HÄNDIG *8/2002, E & M Laursen /* 0529920

MINE WARFARE FORCES

Notes: A transportable COOP system was ordered in 1991. The unit can be shifted from one ship to another and comprises a container, processing module and tactical display, an underwater positioning system, sonar, Sea Eagle ROV and mine disposal charge. Optimised for shallow water surveillance and can be used in conjunction with other MCM systems. The primary role is route survey.

1 FURUSUND CLASS (COASTAL MINELAYER) (MLC)

Name	*No*	*Builders*	*Launched*	*Commissioned*
FURUSUND	MUL 20	ASI Verken	16 Dec 1982	10 Oct 1983

Displacement, tons: 225 full load
Dimensions, feet (metres): 106.9 × 26.9 × 7.5 *(32.6 × 8.2 × 2.3)*
Main machinery: Diesel-electric; 2 Scania GAS 1 diesel generators; 2 motors; 416 hp(m) *(306 kW)*; 2 shafts
Speed, knots: 11.5
Complement: 24
Guns: 1—12.7 mm MG.
Mines: 22 tons.
Radars: Navigation: Racal Decca 1226; I-band.

Comment: Built for the former Coastal Artillery. Carries a Mantis type ROV.

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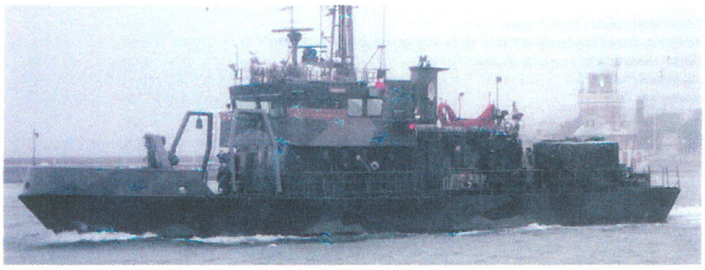


FURUSUND *5/2001, Per Körnefeldt /* 0131140

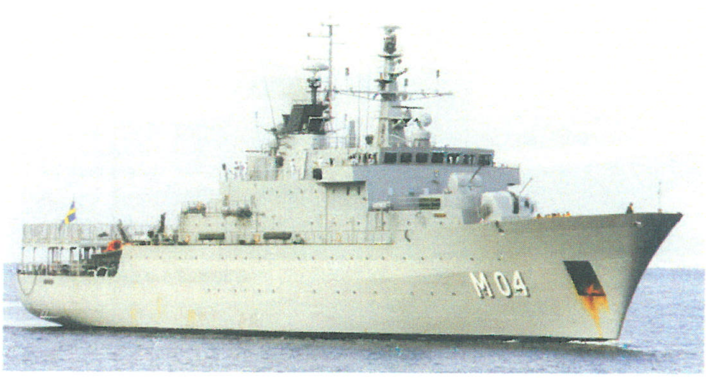
For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit jfs.janes.com

1 CARLSKRONA CLASS (MINELAYER) (AXH/MLH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
CARLSKRONA	M 04	Karlskronavarvet	28 June 1980	11 Jan 1982

Displacement, tons: 3,600 full load
Dimensions, feet (metres): 346.7 × 49.9 × 13.1 *(105.7 × 15.2 × 4)*
Main machinery: 4 Nohab F212 D825 diesels; 10,560 hp(m) *(7.76 MW)*; 2 shafts; cp props
Speed, knots: 20
Complement: 50 plus 136 trainees. Requires 118 as operational minelayer
Guns: 2 Bofors 57 mm/70. 2 Bofors 40 mm/70.
Mines: Can lay 105.
Countermeasures: 2 Philips Philax chaff/IR launchers.
ESM: Argo AR 700; intercept.
Radars: Air/surface search: Ericsson Sea Giraffe 50HC; G/H/I-band.
Surface search: Raytheon; E/F-band.
Fire control: 2 Philips 9LV 200 Mk 2; I/J-band.
Navigation: Terma Scanter 009; I-band.
Helicopters: Platform only.

Comment: Ordered 25 November 1977, laid down in sections late 1979 and launched at the same time as Karlskrona celebrated its tercentenary. Midshipmen's Training Ship as well as a minelayer; also a 'padded' target for exercise torpedoes. Sonar removed. Name is an older form of Karlskrona. ***UPDATED***



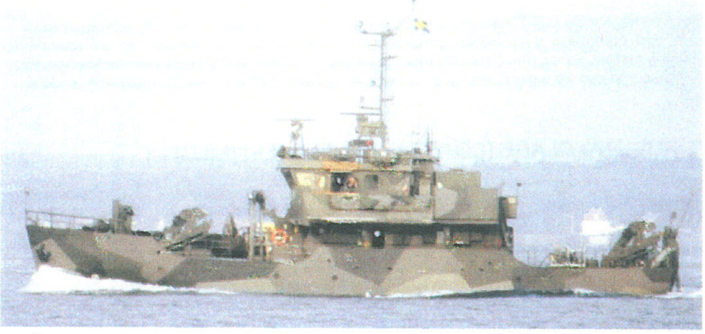
CARLSKRONA *5/2003*, Diego Quevedo* / 0572622

5 ARKÖSUND CLASS (COASTAL MINELAYERS) (MLC)

ARKÖSUND MUL 12
KALMARSUND MUL 13
GRUNDSUND MUL 15
FÅRÖSUND (ex-*Öresund*) MUL 18
BARÖSUND MUL 19

Displacement, tons: 200 standard; 245 full load
Dimensions, feet (metres): 102.3 × 24.3 × 10.2 *(31.2 × 7.4 × 3.1)*
Main machinery: Diesel-electric; 2 Nohab/Scania diesel generators; 2 motors; 460 hp(m) *(338 kW)*; 2 shafts
Speed, knots: 10.5
Complement: 24
Guns: 2—12.7 mm MGs.
Mines: 2 rails; 26 tons.
Radars: Navigation: Racal Decca 1226; I-band.

Comment: All completed by 1954-1957. Former Coastal Artillery craft for laying and maintaining minefields. One deleted in 1992, one in 1996 and *Skramsösund* in 2002. 40 mm guns removed. ***UPDATED***



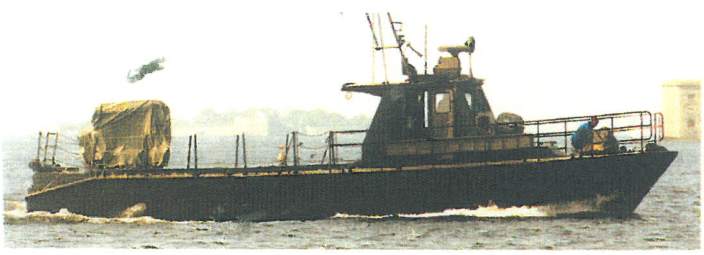
BARÖSUND *8/2003*, E & M Laursen* / 0572623

5 SMALL MINELAYERS (MLI)

M 502, M 505, M 508, M 513, M 516

Displacement, tons: 15 full load
Dimensions, feet (metres): 47.9 × 13.8 × 2.9 *(14.6 × 4.2 × 0.9)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 14
Complement: 7
Mines: 2 rails; 12.
Radars: Navigation: Racal Decca; I-band.

Comment: Ordered in 1969. Mines are laid from rails or by crane on the stern. Former Coastal Artillery craft. ***VERIFIED***



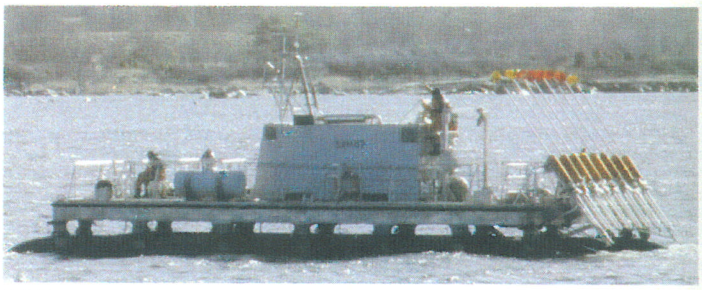
SMALL MINELAYER *5/1995, Curt Borgenstam* / 0080735

5 SAM CLASS (MCM DRONES) (MSD)

SAM 01-02, SAM 04, SAM 06-07

Displacement, tons: 20 full load
Dimensions, feet (metres): 59.1 × 20 × 5.2 *(18 × 6.1 × 1.6)*
Main machinery: 1 Volvo Penta TAMD70D diesel; 210 hp(m) *(154 kW)*; 1 Schottel prop
Speed, knots: 8. **Range, miles:** 330 at 8 kt

Comment: Built by Karlskronavarvet in 1983. *SAM 03* and *05* sold to the USA for Gulf operation in March 1991 and replaced in 1992/93. Remote-controlled catamaran magnetic and acoustic sweepers operated by the 'Landsort' and 'Styrsö' classes. Six sold to Japan. ***UPDATED***



SAM 07 *4/2003*, Per Körnefeldt* / 0572624

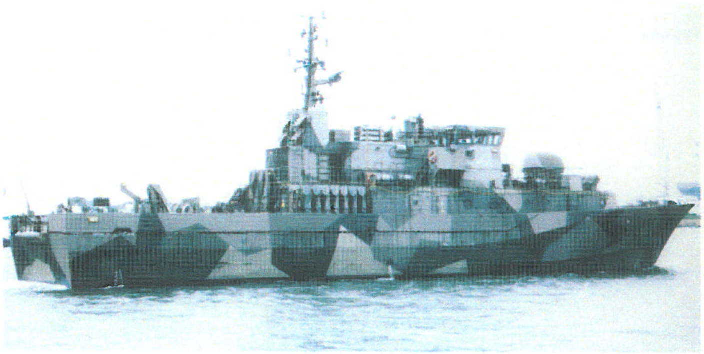
7 LANDSORT CLASS (MINEHUNTERS) (MHSCDM)

Name	*No*	*Builders*	*Launched*	*Commissioned*
LANDSORT	M 71	Karlskronavarvet	2 Nov 1982	19 Apr 1984
ARHOLMA	M 72	Karlskronavarvet	2 Aug 1984	23 Nov 1984
KOSTER	M 73	Karlskronavarvet	16 Jan 1986	30 May 1986
KULLEN	M 74	Karlskronavarvet	15 Aug 1986	28 Nov 1986
VINGA	M 75	Karlskronavarvet	14 Aug 1987	27 Nov 1987
VEN	M 76	Karlskronavarvet	10 Aug 1988	12 Dec 1988
ULVÖN	M 77	Karlskronavarvet	4 Mar 1992	9 Oct 1992

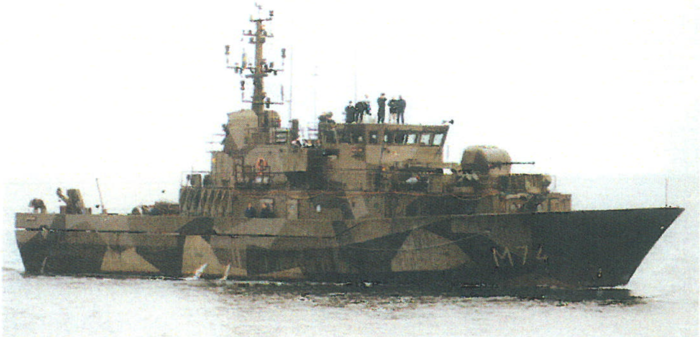
Displacement, tons: 270 standard; 360 full load
Dimensions, feet (metres): 155.8 × 31.5 × 7.3 *(47.5 × 9.6 × 2.2)*
Main machinery: 4 Saab-Scania DSI 14 diesels; 1,592 hp(m) *(1.17 MW)* sustained; coupled in pairs to 2 Voith Schneider props
Speed, knots: 15. **Range, miles:** 2,000 at 12 kt
Complement: 29 (12 officers) plus 4 spare

Missiles: SAM: Saab Manpads.
Guns: 1 Bofors 40 mm/70 Mod 48; 240 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg. Bofors Sea Trinity CIWS trial carried out in *Vinga* (fitted in place of 40 mm/70).
2—7.62 mm MGs.
A/S mortars: 4 Saab Elma 9-tubed launchers; range 400 m; warhead 4.2 kg shaped charge or Saab 601 9-tubed launchers; range 1,200 m; shaped charge.
Countermeasures: Decoys: 2 Philips Philax fixed launchers can be carried with 4 magazines each holding 36 grenades; IR/chaff.
ESM: Matilda; intercept.
MCM: This class is fitted for mechanical sweeps for moored mines as well as magnetic and acoustic sweeps. In addition it is possible to operate two SAM drones (see separate entry). Fitted with 2 Sutec Sea Eagle or Double Eagle remote-controlled units with 600 m tether and capable of 350 m depth.
Weapons control: Philips 9LV 100 optronic director. Philips 9 MJ 400 minehunting system.
Radars: Navigation: Thomson-CSF Terma; I-band.
Sonars: Thomson-CSF TSM-2022; Racal Decca 'Mains' control system; hull-mounted; minehunting; high frequency.

Programmes: The first two of this class ordered in early 1981. Second four in 1984 and the seventh in 1989.
Structure: The GRP mould for the hull has also been used for the Coast Guard former 'KBV 171' class.
Operational: The integrated navigation and action data automation system developed by Philips and Racal Decca.
Sales: Four built for Singapore. ***VERIFIED***



VEN *6/2000, E & M Laursen* / 0106575



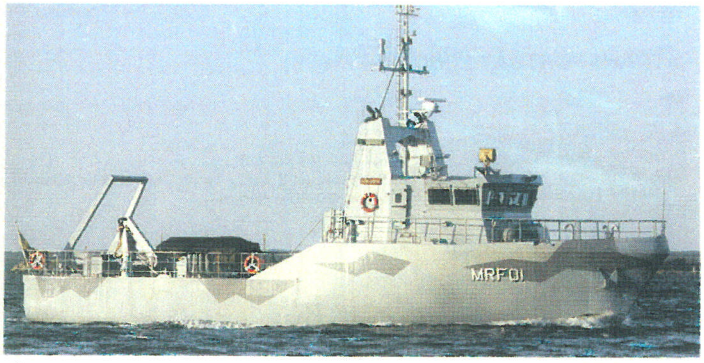
KULLEN *10/2000, Guy Toremans* / 0106576

1 MSF MK 1 CLASS (MSD)

SÖKAREN MRF 01

Displacement, tons: 128 full load
Dimensions, feet (metres): 86.9 × 23 × 6.9 *(26.5 × 7 × 2.1)*
Main machinery: 2 Scania DSI 14 diesels; 1,000 hp(m) *(736 kW)*; 2 Schottel azimuth thrusters
Speed, knots: 12
Complement: 6
Radars: Navigation: Bridgewater E; I-band.
Sonars: STS 2054 side scan active; high frequency.

Comment: MCMV drone with GRP hull transferred from Denmark in 2001 for evaluation following cancellation of SAM II drone project. Further orders are not expected. ***VERIFIED***

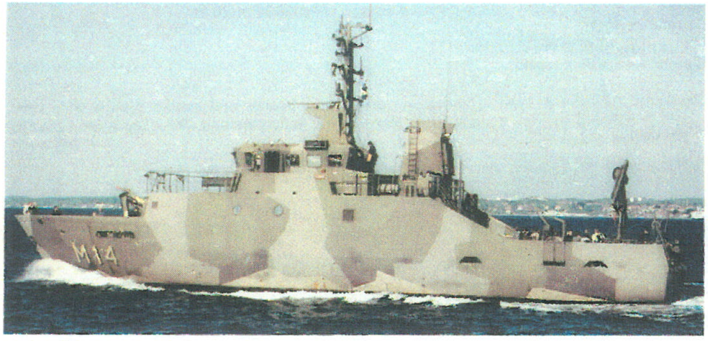

SÖKAREN *6/2002, Swedish Navy* / 0530062

4 STYRSÖ CLASS (MINESWEEPERS/HUNTERS—INSHORE) (MHSDI)

Name	*No*	*Builders*	*Launched*	*Commissioned*
STYRSÖ	M 11	Karlskronavarvet	8 Mar 1996	20 Sep 1996
SPÅRÖ	M 12	Karlskronavarvet	30 Aug 1996	21 Feb 1997
SKAFTÖ	M 13	Karlskronavarvet	20 Jan 1997	13 June 1997
STURKÖ	M 14	Karlskronavarvet	27 June 1997	19 Dec 1997

Displacement, tons: 205 full load
Dimensions, feet (metres): 118.1 × 25.9 × 7.2 *(36 × 7.9 × 2.2)*
Main machinery: 2 Saab Scania DSI 14 diesels; 1,104 hp(m) *(812 kW)*; 2 shafts; bow thruster
Speed, knots: 13
Complement: 17 (9 officers)
Guns: 2—12.7 mm MGs.
Countermeasures: MCM: AK-90 acoustic, EL-90 magnetic, and mechanical sweeps.
2 Sutec Sea Eagle/Double Eagle ROVs equipped with Tritech SE 500 sonar and mine disposal charges.
Combat data systems: Ericsson tactical data system with datalink.
Radars: Navigation: Racal Bridgemaster: I-band.
Sonars: Reson Sea Bat 8100; mine avoidance; active; high frequency.
EG & G side scan; active for route survey; high frequency.

Comment: Contract awarded to KKV and Erisoft AB on 11 February 1994. Capable of operating two SAM drones. These ships are also used for inshore surveillance patrols. ***VERIFIED***

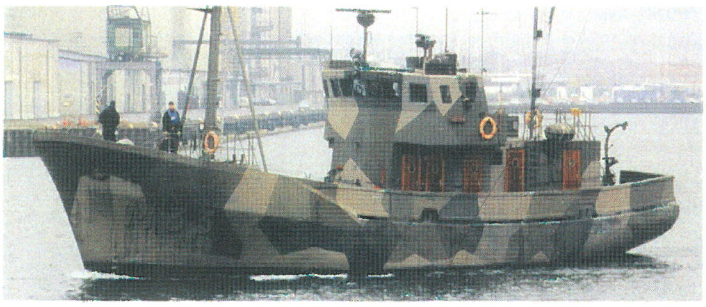

STURKÖ *5/2001, L-G Nilsson* / 0131148

1 GÅSSTEN CLASS (MINESWEEPER—INSHORE) (MSI)

Name	*No*	*Builders*	*Commissioned*
VIKSTEN	M 33	Karlskronavarvet	15 July 1974

Displacement, tons: 120 standard; 135 full load
Dimensions, feet (metres): 78.7 × 21.3 × 11.5 *(24 × 6.5 × 3.5)*
Main machinery: 1 diesel; 460 hp(m) *(338 kW)*; 1 shaft
Speed, knots: 11
Complement: 9
Guns: 1 Bofors 20 mm.
Radars: Navigation: Terma; I-band.

Comment: Ordered 1972 built of GRP. ***VERIFIED***

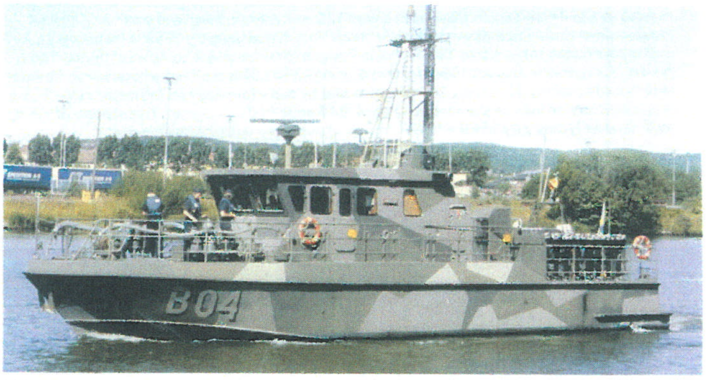

VIKSTEN *11/2002, Per Körnefeldt* / 0529918

4 EJDERN CLASS (SONOBUOY CRAFT) (MSI)

EJDERN B 01 **KRICKAN** B 02 **SVÄRTAN** B 03 **VIGGEN** B 04

Displacement, tons: 39 full load
Dimensions, feet (metres): 65.6 × 15.7 × 4.3 *(20 × 4.8 × 1.3)*
Main machinery: 2 Volvo Penta TAMD122 diesels; 366 hp(m) *(269 kW)* sustained; 2 shafts
Speed, knots: 15
Complement: 9 (3 officers)
Guns: 1—7.62 mm MG.
Radars: Navigation: Terma; I-band.

Comment: Built by Djupviksvarvet and completed in 1991. GRP hulls. Classified as mine warfare vessels. Used for laying and monitoring sonobuoys to detect intruders in Swedish territorial waters. Carry an AQS-928 acoustic processor. ***UPDATED***


VIGGEN *8/2003*, E & M Laursen* / 0572625

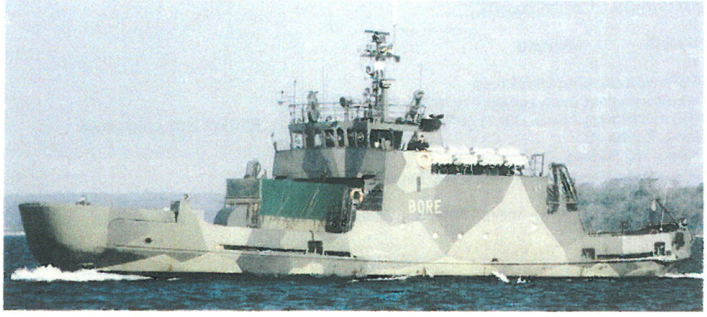
AMPHIBIOUS FORCES

3 GRIM CLASS (LCM)

BORE **RÄFSNÄS** (ex-*Grim*) **HEIMDAL**

Displacement, tons: 340 full load
Dimensions, feet (metres): 124 × 28.2 × 8.5 *(37.8 × 8.6 × 2.6)*
Main machinery: 2 diesels; 800 hp(m) *(588 kW)*; 2 shafts
Speed, knots: 12
Military lift: 325 troops
Guns: 2—12.7 mm MGs.
Radars: Navigation: Terma; I-band.

Comment: Launched in 1961 *(Räfsnäs)* and other two in 1966. Former Coastal Artillery craft and used to transport guns. There are some superstructure and funnel shape differences. ***UPDATED***

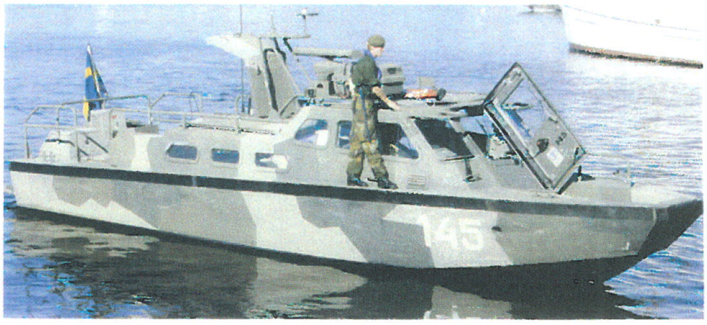

BORE *5/2000, Per Körnefeldt* / 0106578

54 COMBATBOAT 90E (STRIDSBÅT) (YH)

101-154

Displacement, tons: 9 full load
Dimensions, feet (metres): 39 × 9.5 × 2.3 *(11.9 × 2.9 × 0.7)*
Main machinery: 1 Scania AB DSI 14 diesel; 398 hp(m) *(293 kW)* sustained; FFJet 410 water-jet
Speed, knots: 40; 37 (laden)
Complement: 2
Military lift: 2 tons or 6-10 troops
Radars: Navigation: Furuno 8050; I-band.

Comment: First batch ordered from Storebro Royal Cruiser AB in 1995 for delivery from August 1995-98. Second batch ordered in 1997 for delivery in 1998-99. These are ambulance boats but may also be used for stores. Two more ordered for Chinese Customs and three for Malaysian Customs in April 1997. ***UPDATED***


COMBATBOAT 145 *8/2002, E & M Laursen* / 0529915

147 COMBATBOAT 90H (STRIDSBÅT) (LCPFM)

801-946 **BLÅTUNGA** 947

Displacement, tons: 19 full load
Dimensions, feet (metres): 52.2 × 12.5 × 2.6 *(15.9 × 3.8 × 0.8)*
Main machinery: 2 Saab Scania DSI 14 diesels; 1,104 hp(m) *(812 kW)*; 2 Kamewa water-jets
Speed, knots: 35-50; 20 (Sea State 3). **Range, miles:** 240 at 30 kt
Complement: 3
Military lift: 20 troops plus equipment or 2.8 tons
Missiles: SSM: Rockwell RBS 17 Hellfire; semi-active laser guidance to 5 km *(3 n miles)* at 1.0 Mach; warhead 8 kg.
Guns: 3—12.7 mm MGs.
Mines: 4 (or 6 depth charges).
Radars: Navigation: Racal Decca; RD 360 or Furuno 8050; I-band.

Comment: The first two prototypes ordered in January 1988 are no longer in service, although *914* is used as a trials craft and is fitted with a twin 120 mm mortar. Twelve more built in 1991-92. 63 more ordered from Dockstavarvet and Gotlands Varv in mid-January 1992, with an option for 35 more which was taken up in 1994. The building period for these completed in mid-1997. 22 Batch 2C ordered in August 1996 delivered by mid-2001. This craft has a large hatch forward to aid disembarkation. All have a 20° deadrise and all carry four six-man inflatable rafts. Some of these craft are on loan to the Swedish Police. 947 equipped as VIP craft. Twenty-two of the class delivered to Norway by 1999 and a further 40 have been delivered to Mexico.

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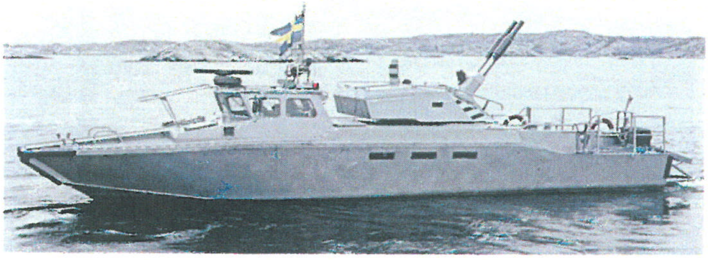
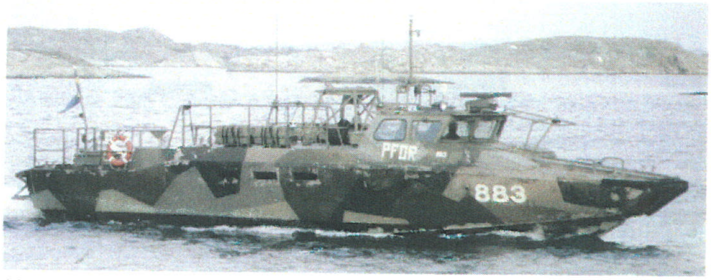


COMBATBOAT 914 *11/2003*, L-G Nilsson* / 0572626



COMBATBOAT 883 *11/2003*, E & M Laursen* / 0572627

17 LCMs (TROSSBÅT)

603-612 **652-658**

Displacement, tons: 55 full load
Dimensions, feet (metres): 68.9 × 19.7 × 4.9 *(21 × 6 × 1.5)*
Main machinery: 2 Saab DSI 11/40 M2 diesels; 340 hp(m) *(250 kW)*; 2 Schottel props
Speed, knots: 10
Military lift: 30 tons
Radars: Navigation: Racal Decca 914C; I-band.

Comment: Completed from 1980-88. Classified as Trossbåt (support boat). Built by Djupviksvarvet.

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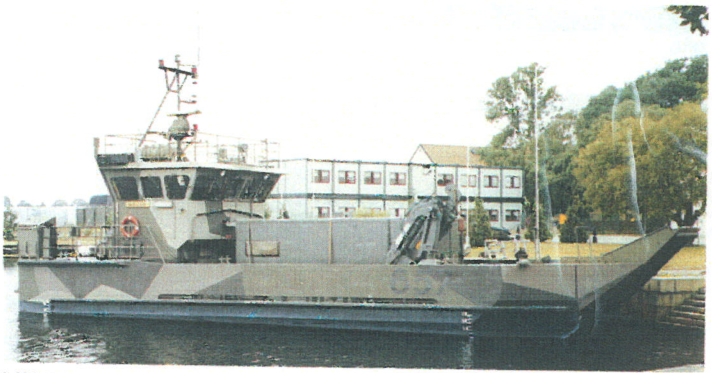


LCM 657 *7/2002, Frank Findler* / 0529907

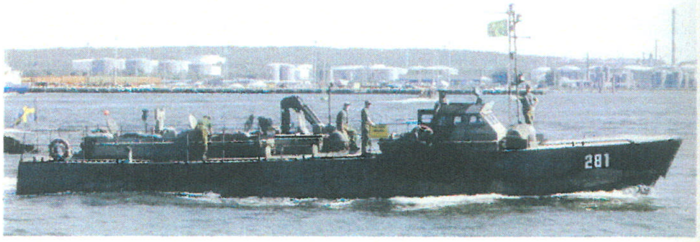
23 LCUs (LCU)

207-208	234, 235, 237	261, 263, 264
215	241, 244	267-269
223, 225, 228	247, 248	281, 283
230-232	252, 258	

Displacement, tons: 31 full load
Dimensions, feet (metres): 70.2 × 13.8 × 4.2 *(21.4 × 4.2 × 1.3)*
Main machinery: 3 diesels; 600 hp(m) *(441 kW)*; 3 shafts
Speed, knots: 18
Military lift: 40 tons; 40 troops
Guns: 3 to 8—6.5 mm MGs.
Mines: Minelaying capability (*281-283* only).

Comment: Built between 1960 and 1987. 35 modernised 1989-93; 12 more 1997-98. Many have been decommissioned and some sold to private buyers.

UPDATED



LCU 281 *6/2002, Per Körnefeldt* / 0529912

2 TRANSPORTBÅT 2000 (AGF/YFLB)

451 **452**

Displacement, tons: 43 full load
Dimensions, feet (metres): 77.1 × 16.7 × 3.3 *(23.5 × 5.1 × 1)*
Main machinery: 3 Saab Scania DSI 14 diesels or 3 Volvo Penta 163 diesels; 1,194 hp(m) *(878 kW)* sustained; 3 FFJet 450 or 3 Kamewa K40 waterjets
Speed, knots: 25
Complement: 3
Military lift: 45 troops or 10 tons
Guns: 2—12.7 mm MGs.
Radars: Navigation: Terma; I-band.

Comment: Two similar prototypes ordered from Djupviks Shipyard in 1997. *452* is configured for troop carrying, and *451* as a command boat. Each has a different propulsion system which are in competition to be fitted in seven more troop carriers and three more command boats. Further orders are not expected.

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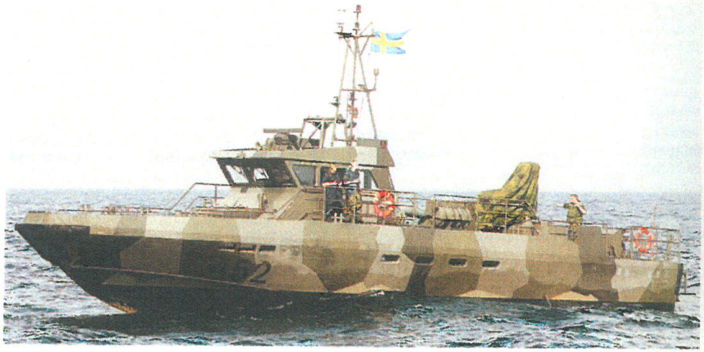

TRANSPORTBÅT 452 *6/2000, Michael Nitz* / 0106583

1 M 10 CLASS HOVERCRAFT (UCAC)

Displacement, tons: 26 full load
Dimensions, feet (metres): 61.8 × 29 *(18.8 × 8.8)*
Main machinery: 2 Scania diesels; 1,224 hp(m) *(900 kW)*
Speed, knots: 40; 7 with cushion deflated. **Range, miles:** 600 at 30 kt
Complement: 3
Military lift: 10 tons or 50 troops
Radars: Navigation: I-band.

Comment: ABS design built at Karlskronavarvet under licence and started trials in June 1998 which included ice trials in early 1999. Has a Kevlar superstructure. Three more were planned but further orders are not now expected.

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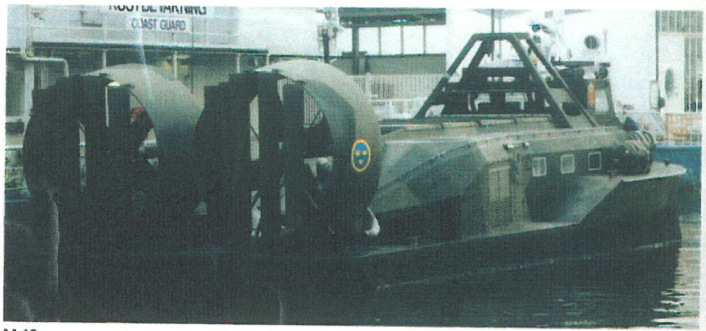


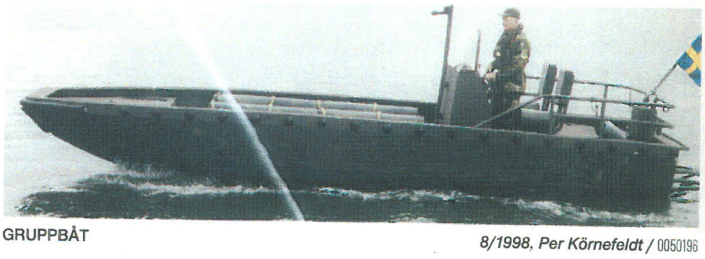
M 10 *8/1999, Per Körnefeldt* / 0080743

102 RAIDING CRAFT (GRUPPBÅT) (LCP)

Displacement, tons: 3 full load
Dimensions, feet (metres): 26.2 × 6.9 × 1 *(8 × 2.1 × 0.3)*
Main machinery: 1 Volvo Penta TAMD 42WJ diesel; 230 hp(m) *(169 kW)*; 1 Kamewa 240 waterjet
Speed, knots: 30
Complement: 2
Military lift: 1 ton

Comment: Small raiding craft are used throughout the Archipelago. Some have been replaced.

UPDATED



GRUPPBÅT *8/1998, Per Körnefeldt* / 0050196

ICEBREAKERS

Notes: All Icebreakers have been transferred to and are manned by the National Maritime Administration.

1 ODEN CLASS (AGB/ML)

Name	*Builders*	*Launched*	*Commissioned*
ODEN	Gotaverken Arendal, Göteborg	25 Aug 1988	29 Jan 1989

Displacement, tons: 12,900 full load
Dimensions, feet (metres): 352.4 × 102 × 27.9 *(107.4 × 31.1 × 8.5)*
Main machinery: 4 Sulzer ZAL40S8L diesels; 23,940 hp(m) *(17.6 MW)* sustained; 2 shafts; cp props
Speed, knots: 17. **Range, miles:** 30,000 at 13 kt
Complement: 32 plus 17 spare berths
Guns: 4 Bofors 40 mm/70 can be fitted.

Comment: Ordered in February 1987, laid down 19 October 1987. Can break 1.8 m thick ice at 3 kt. Towing winch aft with a pull of 150 tons. Helicopter platform 73.5 × 57.4 ft *(22.4 × 17.5 m)*. The main hull is only 25 m wide but the full width is at the bow. Fitted with water-jet and heeling pump system to assist with ice-breaking operations. Also equipped as a minelayer.

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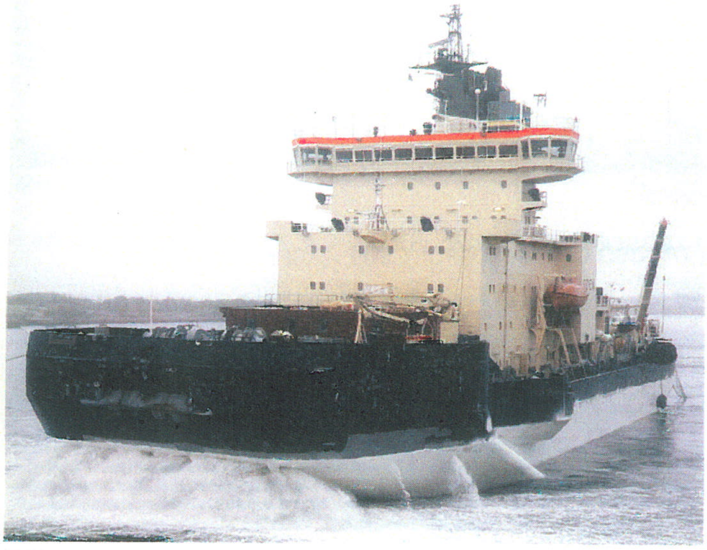

ODEN (with water-jets) *10/2000, Per Körnefeldt* / 0106584

3 ATLE CLASS (AGBH/ML)

Name	*Builders*	*Launched*	*Commissioned*
ATLE	Wärtsilä, Helsinki	27 Nov 1973	21 Oct 1974
FREJ	Wärtsilä, Helsinki	3 June 1974	30 Sep 1975
YMER	Wärtsilä, Helsinki	3 Sep 1976	25 Oct 1977

Displacement, tons: 7,900 standard; 9,500 full load
Dimensions, feet (metres): 343.1 × 78.1 × 23.9 *(104.6 × 23.8 × 7.3)*
Main machinery: 5 Wärtsilä-Pielstick diesels; 22,000 hp(m) *(16.2 MW)*; 4 Strömberg motors; 22,000 hp(m) *(16.2 MW)*; 4 shafts (2 fwd, 2 cp aft)
Speed, knots: 19
Complement: 50 (16 officers)
Guns: 4 Bofors 40 mm/70.
Helicopters: 2 light.

Comment: Similar to Finnish 'Urho' class. Also equipped as minelayers.

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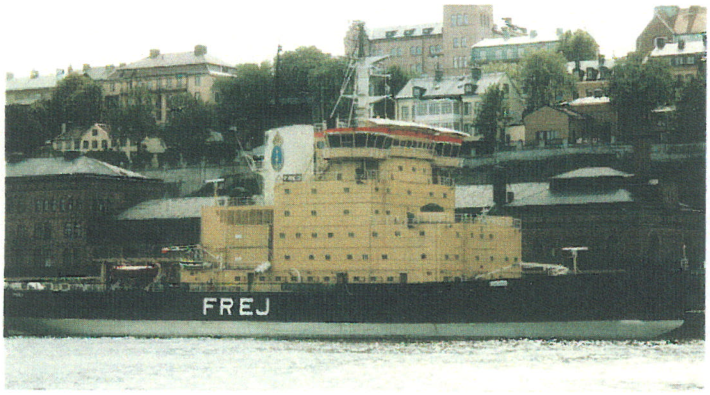

FREJ *8/1994, E & M Laursen* / 0080744

1 ALE CLASS (AGB/AGS)

Name	*Builders*	*Launched*	*Commissioned*
ALE	Wärtsilä, Helsinki	1 June 1973	19 Dec 1973

Displacement, tons: 1,550
Dimensions, feet (metres): 154.2 × 42.6 × 16.4 *(47 × 13 × 5)*
Main machinery: 2 diesels; 4,750 hp(m) *(3.49 MW)*; 2 shafts
Speed, knots: 14
Complement: 32 (8 officers)
Guns: 1 Bofors 40 mm/70 (not embarked).

Comment: Built for operations on Lake Vänern. Is also used as a survey ship.

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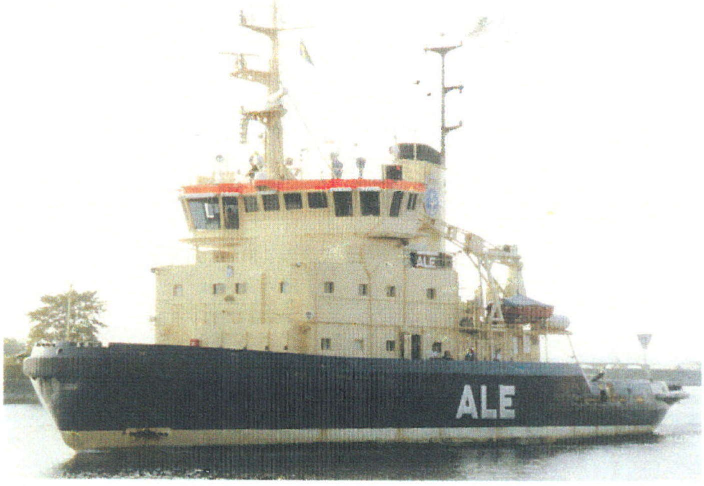

ALE *9/2002, E & M Laursen* / 0529911

INTELLIGENCE VESSELS

1 ELECTRONIC SURVEILLANCE SHIP (AGIH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ORION	A 201	Karlskronavarvet	30 Nov 1983	7 June 1984

Displacement, tons: 1,400 full load
Dimensions, feet (metres): 201.1 × 32.8 × 9.8 *(61.3 × 10 × 3)*
Main machinery: 2 Hedemora V8A diesels; 1,800 hp(m) *(1.32 MW)* sustained; 2 shafts; cp props
Speed, knots: 15
Complement: 35
Radars: Navigation: Terma Scanter 009; I-band.
Helicopters: Platform for 1 light.

Comment: Ordered 23 April 1982. Laid down 28 June 1982. The communications aerials are inside the elongated dome.

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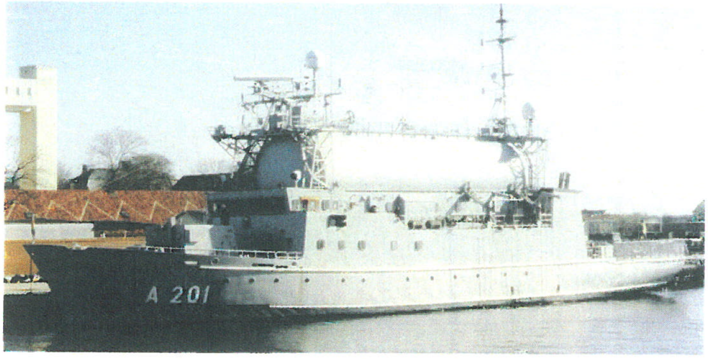
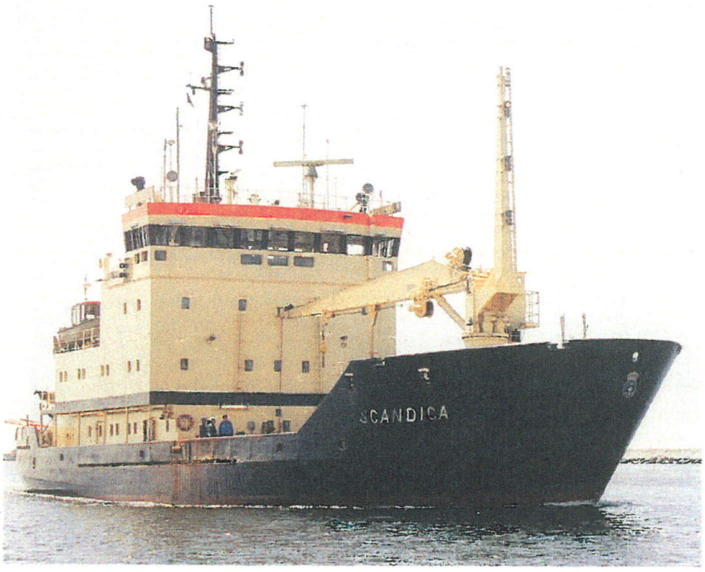


ORION *4/2003*, Per Körnefeldt* / 0572628

SURVEY SHIPS

Notes: (1) Owned and manned (since 1 January 2002) by the National Maritime Administration.
(2) There is a research ship *Argos*. Civilian manned and owned by the National Board of Fisheries. A second civilian ship *Ocean Surveyor* belongs to the Geological Investigation but has been leased as a Support Ship on occasions.
(3) The Board of Navigation owns two buoy tenders *Scandica* and *Baltica* built in 1982 and two lighthouse tenders *Fyrbyggaren* and *Fyrbjörn*.



SCANDICA *6/2000, Curt Borgenstam* / 0106585

1 SURVEY SHIP (AGS)

JACOB HÄGG

Displacement, tons: 192 standard
Dimensions, feet (metres): 119.8 × 24.6 × 5.6 *(36.5 × 7.5 × 1.7)*
Main machinery: 4 Saab Scania DSI 14 diesels; 1,592 hp(m) *(1.17 MW)* sustained; 2 shafts
Speed, knots: 16
Complement: 13 (5 officers)

Comment: Laid down April 1982 at Djupviks Shipyard. Launched 12 March 1983. Completed 16 May 1983. Aluminium hull.
VERIFIED

JACOB HÄGG *5/1998, J Ciślak* / 0050199

1 SURVEY SHIP (AGS)

NILS STRÖMCRONA

Displacement, tons: 210 full load
Dimensions, feet (metres): 98.4 × 32.8 × 5.9 *(30 × 10 × 1.8)*
Main machinery: 4 Saab Scania DSI 14 diesels; 1,592 hp(m) *(1.17 MW)* sustained; 2 shafts; bow and stern thrusters
Speed, knots: 12
Complement: 14 (5 officers)

Comment: Completed 28 June 1985. Of catamaran construction-each hull of 3.9 m made of aluminium.
VERIFIED

NILS STRÖMCRONA *9/2001, Per Körnefeldt* / 0131143

RESCUE VEHICLES

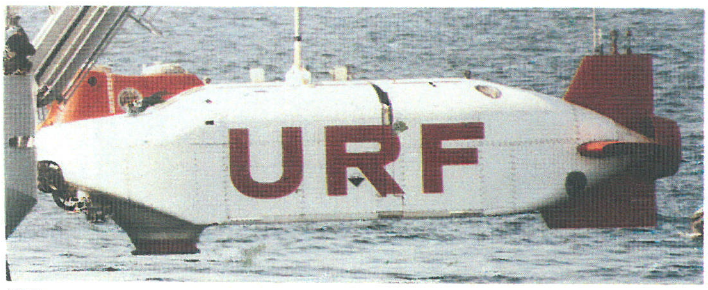
Notes: (1) Kockums is developing S-SRV, a replacement submarine rescue vehicle. A further development of URF, it will be capable of rescuing 35 people in a single mission. With a speed of 4.5 kt, it will be capable of operating down to depths of 700 m and mating with the hull of a submarine at angles up to 60°. Rescued personnel will be transferred to a recompression chamber on a surface vessel. Navigational aids will include sonars and underwater cameras. It will be road/air/ship transportable and be capable of operating from another submarine.
(2) Early in 1995 Sweden signed an agreement with Norway to provide submarine rescue.

1 RESCUE SUBMERSIBLE (DSRV)

URF

Displacement, tons: 52
Dimensions, feet (metres): 45.6 × 10.5 × 9.2 *(13.9 × 3.2 × 2.8)*
Main machinery: Electric/hydraulic: single shaft
Speed, knots: 3
Complement: 4

Comment: Rescue submersible URF (*Ubåts Räddnings Farkost*) was launched by Kockums on 17 April 1978 and commissioned in 1979. The double-hulled vehicle is capable of operating down to 460 m with an endurance of 85 hours. The URF can mate with the hull of a submarine at angles up to 45° and is equipped with a lockout chamber that can support two divers to 300 m. It has a rescue capacity of 35 per dive and submariners can be transferred directly from the pressurised hull of the submarine to a compression chamber on board the support ship *Belos*. The vehicle is normally based at the Naval Diving Centre at Berga but can be transported by road using a specially designed trailer to a site suitable for loading on to the support ship. URF has recently been refitted and will remain in service until 2005.
UPDATED



URF *9/1998, J Cislak* / 0050200

AUXILIARIES

1 TRANSPORT (AKR)

Name	*No*	*Builders*	*Commissioned*
SLEIPNER (ex-*Ardal*)	A 343	Bergen	1980

Displacement, tons: 1,049 full load
Dimensions, feet (metres): 163.1 × 36.1 × 11.5 *(49.7 × 11 × 3.5)*
Main machinery: 1 Normo diesel; 1,300 hp(m) *(956 kW)*; 1 shaft
Speed, knots: 12
Complement: 12
Cargo capacity: 260 tons

Comment: Former Ro-Ro vessel acquired in 1992 from a Norwegian Shipping Company. There is a stern ramp and side door.
UPDATED

SLEIPNER *7/2003*, E & M Laursen* / 0572629

1 TROSSÖ CLASS (SUPPORT SHIP) (AGP)

Name	*No*	*Builders*	*Commissioned*
TROSSÖ (ex-*Arnold Viemer*, ex-*Livonia*)	A 264	Valmet, Finland	1 Jan 1984

Displacement, tons: 2,140 full load
Dimensions, feet (metres): 234.9 × 42 × 14.8 *(71.6 × 12.8 × 4.5)*
Main machinery: 2 Russkiy G74 36/45 diesels; 3,084 hp(m) *(2.27 MW)*; 2 shafts
Speed, knots: 14
Complement: 64

Comment: Built as a survey ship for the USSR and used in the Baltic as an AGOR. Taken on by the Estonian Marine Institute and then transferred to Sweden on 23 September 1996. Converted as a depot ship for corvettes and patrol craft and back in service in 1997. Can act as a Headquarters Ship. A second vessel, *Ornö*, was purchased in 2001 but rebuilding of the ship was abandoned in November 2001 due to its poor material state.
VERIFIED

TROSSÖ *5/2002, Curt Borgenstam* / 0529913

1 ÄLVSBORG CLASS (SUPPORT SHIP) (AKH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
VISBORG	A 265	Karlskronavarvet	25 Jan 1975	6 Feb 1976

Displacement, tons: 2,400 standard; 2,650 full load
Dimensions, feet (metres): 303.1 × 48.2 × 13.2 *(92.4 × 14.7 × 4)*
Main machinery: 2 Nohab-Polar diesels; 4,200 hp(m) *(3.1 MW)*; 1 shaft; cp prop; bow thruster; 350 hp(m) *(257 kW)*
Speed, knots: 16
Complement: 95
Guns: 3 Bofors 40 mm/70 SAK 48.
ESM: Argo 700; intercept.
Radars: Surface search: Raytheon; E/F-band.
Fire control: Philips 9LV 200 Mk 2; I/J-band.
Navigation: Terma Scanter 009; I-band.
Helicopters: Platform only.

Comment: Laid down on 16 October 1973. Formerly a minelayer, now supply ship for second surface flotilla. Sister ship transferred to Chile in 1996.
UPDATED

VISBORG *8/2003*, E & M Laursen* / 0572630

1 MCM SUPPORT (MCS)

Name	*No*	*Builders*	*Commissioned*
GÅLÖ (ex-*Herjolfur*)	A 263	Bergen	1976

Displacement, tons: 1,400 full load
Dimensions, feet (metres): 196.9 × 39.4 × 14.4 *(60 × 12 × 4.4)*
Main machinery: 1 Wichman diesel; 2,400 hp(m) *(1.76 MW)*; 1 shaft; 2 bow thrusters
Speed, knots: 12
Complement: 24

Comment: Built as a ferry for Iceland. Acquired in 1993 as a repair and maintenance ship for patrol craft. Role changed to MCM support ship in 2000.

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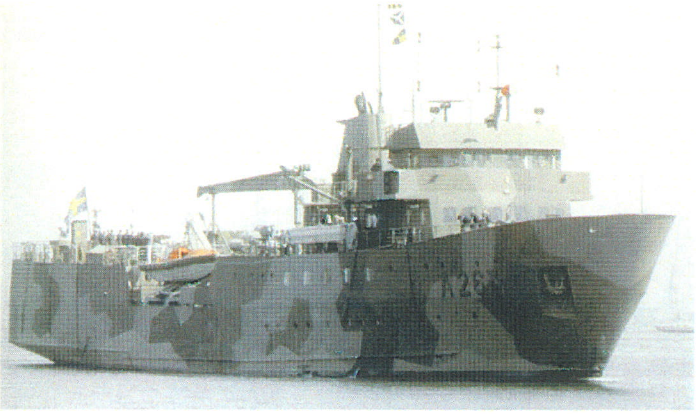

GÅLÖ *7/2003*, E & M Laursen* / 0572631

1 DIVER SUPPORT SHIP (YDT/AGFH)

Name	*No*	*Builders*	*Commissioned*
SKREDSVIK (ex-*KBV 172*)	A 262 (ex-M 70)	Karlskronavarvet	Oct 1981

Displacement, tons: 375 full load
Dimensions, feet (metres): 164 × 27.9 × 7.9 *(50 × 8.5 × 2.4)*
Main machinery: 2 Hedemora V16A diesels; 4,500 hp(m) *(3.3 MW)*; 2 shafts
Speed, knots: 18. **Range, miles:** 3,000 at 12 kt
Complement: 15
Radars: Navigation: 2 Racal Decca; I-band.
Helicopters: Platform for 1 light.

Comment: Transferred from the Coast Guard in 1991 and used as a Diver Support ship for mine clearance operations after a refit from October 1992 to February 1993. Employed for Command and Control in war. Has a Simrad high-frequency active sonar.

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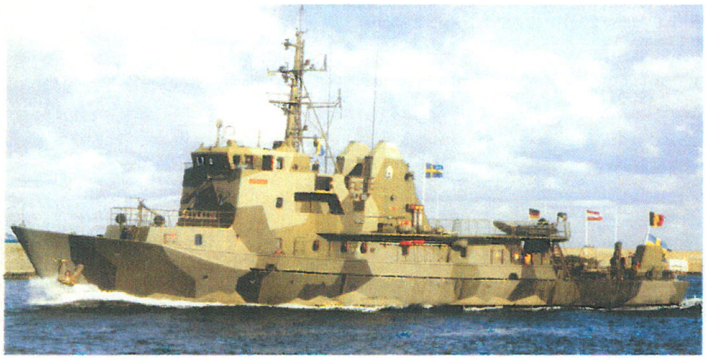

SKREDSVIK *7/1996, Per Körnefeldt* / 0080752

1 DIVER SUPPORT SHIP (YDT/AGF)

ÄGIR (ex-*Bloom Syrveyor*) A 212

Displacement, tons: 117 full load
Dimensions, feet (metres): 82 × 24.9 × 6.6 *(25 × 7.6 × 2)*
Main machinery: 2 GM diesels; 2 shafts
Speed, knots: 11
Complement: 15
Radars: Navigation: Terma; I-band.

Comment: Built in Norway in 1984. Acquired in 1989.

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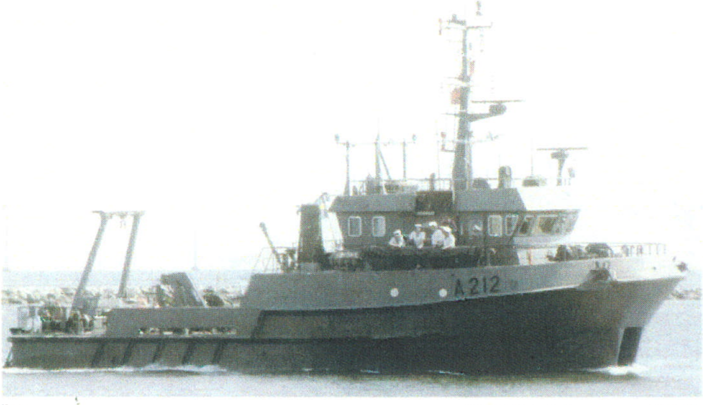

ÄGIR *7/2003*, E & M Laursen* / 0572632

1 DIVER SUPPORT SHIP (YDT)

NORDANÖ (ex-*Sjöjungfrun*) A 213

Displacement, tons: 148 full load
Dimensions, feet (metres): 80.1 × 24.9 × 8.9 *(24.4 × 7.6 × 2.7)*
Main machinery: 2 Volvo Penta TAMD diesels; 767 hp(m) *(564 kW)*; 2 shafts
Speed, knots: 10
Complement: 15

Comment: Launched in 1983 and bought by the Navy in 1992.

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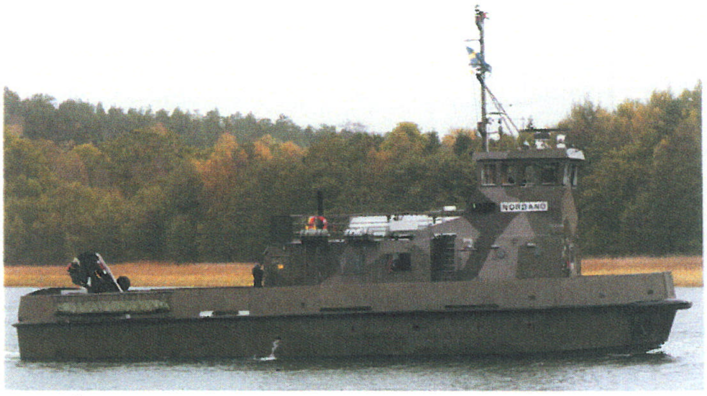

NORDANÖ *6/2002, Swedish Navy* / 0530069

1 SALVAGE SHIP (ARSH)

Name	*No*	*Builders*	*Recommissioned*
BELOS III (ex-*Energy Supporter*)	A 214	De Hoop, Netherlands	Nov 1992

Measurement, tons: 5,096 grt
Dimensions, feet (metres): 344.2 × 59.1 × 16.7 *(104.9 × 18 × 5.1)*
Main machinery: 5 MAN 9ASL 25/30 diesel alternators; 8.15 MW; 2 motors; 5,110 hp(m) *(3.76 MW)*; 2 azimuth thrusters and 3 bow thrusters
Speed, knots: 14
Complement: 50 (22 officers)

Comment: Bought from Midland and Scottish Resources in mid-1992 and arrived in Sweden in November 1992. Replaced the previous ship of the same name which paid off in April 1993. Ice-strengthened hull and fitted with a helicopter platform. Acts as the support ship for the rescue submersible URF. Equipped with Dynamic Positioning System MOSHIP.

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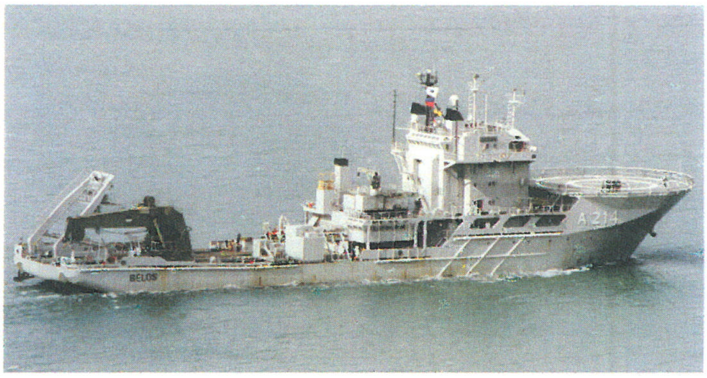

BELOS III *3/2003*, John Brodie* / 0572633

1 TORPEDO AND MISSILE RECOVERY VESSEL (YPT)

Name	*No*	*Builders*	*Commissioned*
PELIKANEN	A 247	Djupviksvarvet	26 Sep 1963

Displacement, tons: 144 full load
Dimensions, feet (metres): 108.2 × 19 × 7.2 *(33 × 5.8 × 2.2)*
Main machinery: 2 MTU MB diesels; 1,040 hp(m) *(764 kW)*; 2 shafts
Speed, knots: 14
Complement: 14
Radars: Navigation: Terma; I-band.

Comment: Torpedo recovery and rocket trials vessel.

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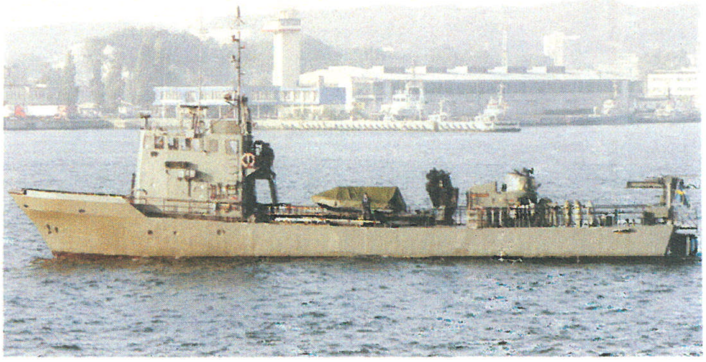

PELIKANEN *9/1998, J Ciślak* / 0050204

1 TORPEDO AND MISSILE RECOVERY VESSEL (YPT)

Name	*No*	*Builders*	*Commissioned*
PINGVINEN	A 248	Lunde Varv-och Verstads	20 Mar 1975

Displacement, tons: 191 full load
Dimensions, feet (metres): 109.3 × 20 × 7.2 *(33.3 × 6.1 × 2.2)*
Main machinery: 2 MTU diesels; 1,140 hp(m) *(838 kW)*; 2 shafts
Speed, knots: 13
Complement: 14
Radars: Navigation: Terma; I-band.

Comment: Recovery vessel for trials firings.

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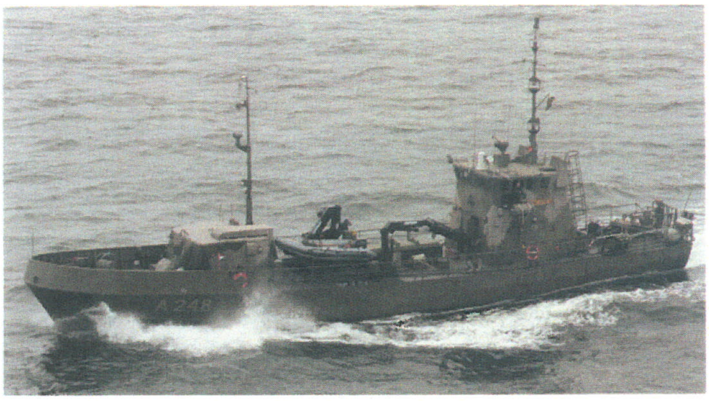

PINGVINEN *6/2002, Swedish Navy* / 0530068

1 SUPPORT SHIP (AKL)

Name	*No*	*Builders*	*Commissioned*
LOKE	A 344	Oskarsham Shipyard	Sep 1994

Displacement, tons: 455 full load
Dimensions, feet (metres): 117.8 × 29.5 × 8.6 *(35.9 × 9 × 2.7)*
Main machinery: 2 Scania diesels; 2 shafts
Speed, knots: 12
Complement: 8
Cargo capacity: 50 tons or 50 passengers
Radars: Navigation: Terma; I-band.

Comment: General support craft which can be used as a ferry. Landing craft bow.

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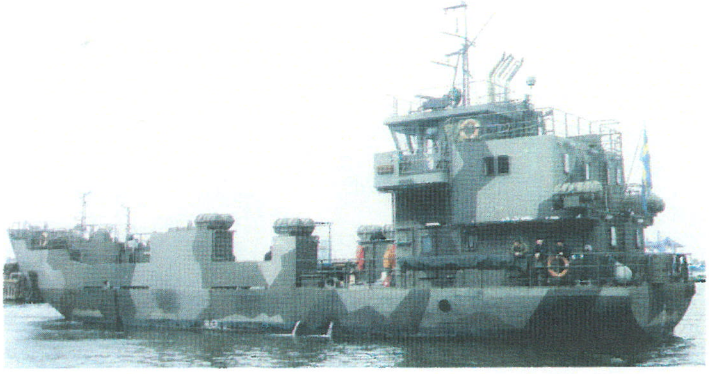

LOKE *8/1998, E & M Laursen* / 0050205

16 SUPPORT VESSEL (TROSSBÅT) (YAG)

662-677

Displacement, tons: 60 full load
Dimensions, feet (metres): 80.1 × 17.7 × 4.6 *(24.4 × 5.4 × 1.4)*
Main machinery: 3 Saab Scania DSI 14 diesels; 1,194 hp(m) *(878 kW)* sustained; 3 FFJet 450 water-jets
Speed, knots: 25; 13 (laden)
Complement: 3
Military lift: 22 tons
Guns: 1—12.7 mm MG.
Radars: Navigation: Terma; I-band.

Comment: Prototype Trossbåt-built at Holms Shipyard in 1991 and capable of carrying 15 tons of deck cargo and 9 tons internal cargo or 17 troops plus mines. Aluminium hull with a bow ramp. Some ice capability. A second prototype delivered in late 1993, and the first production vessel in 1996.

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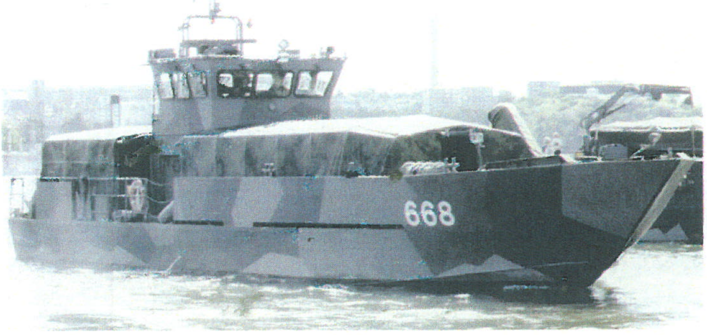

TROSSBÅT 668 *8/2002, E & M Laursen* / 0529906

TRAINING SHIPS

2 SAIL TRAINING SHIPS (AXS)

Name	*No*	*Builders*	*Commissioned*
GLADAN	S 01	Naval Dockyard, Stockholm	1947
FALKEN	S 02	Naval Dockyard, Stockholm	1947

Displacement, tons: 225 standard
Dimensions, feet (metres): 112.8 × 23.6 × 13.8 *(34.4 × 7.2 × 4.2)*
Main machinery: 1 diesel; 120 hp(m) *(88 kW)*; 1 shaft

Comment: Sail training ships. Two masted schooners. Sail area, 512 sq m. Both had major overhauls in 1986-88 in which all technical systems were replaced.

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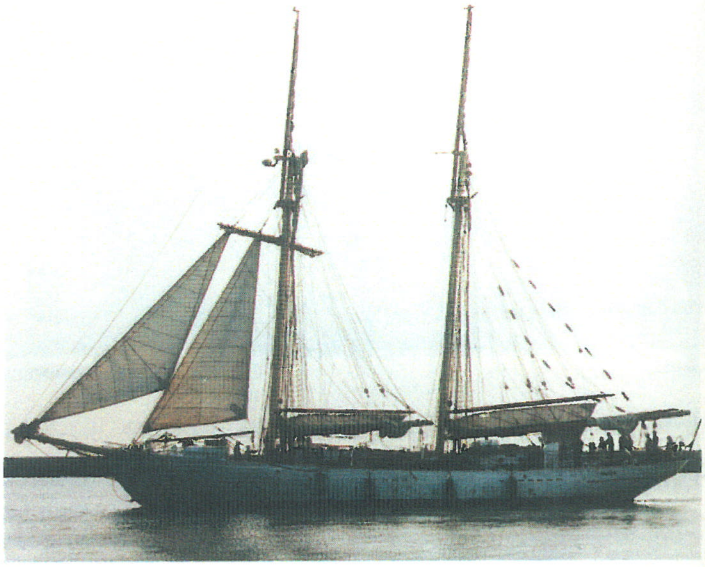

FALKEN *5/1997, Marek Twardowski* / 0019218

1 ARKÖ CLASS TRAINING VESSEL (YXT)

Name	*No*	*Builders*	*Commissioned*
NÄMNDÖ	M 67	Karlskronavarvet, Karlskrona	1964

Displacement, tons: 300 full load
Dimensions, feet (metres): 145.7 × 24.6 × 8.2 *(44.4 × 7.5 × 2.5)*
Main machinery: 2 MTU 12V493 diesels; 2 shafts
Speed, knots: 14

Comment: Former minesweeper of wooden construction. Converted to navigational training ship during 1990s.

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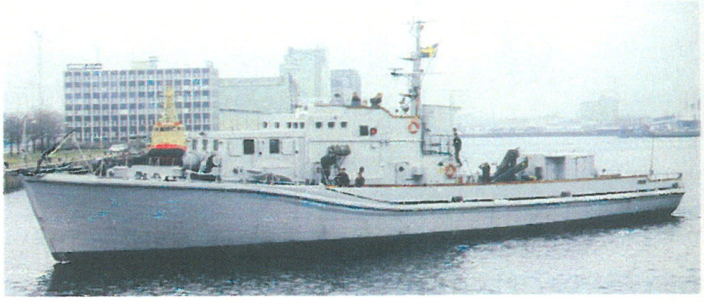

NÄMNDÖ *11/2002, Per Körnefeldt* / 0529910

5 M 15 CLASS (MINESWEEPERS—INSHORE) (MSI/AXL)

M 20 **M 21** **M 22** **M 24** **M 25**

Displacement, tons: 70 full load
Dimensions, feet (metres): 90.9 × 16.5 × 6.6 *(27.7 × 5 × 2)*
Main machinery: 2 diesels; 320 hp(m) *(235 kW)* sustained; 2 shafts
Speed, knots: 12
Complement: 10
Radars: Navigation: Terma; I-band.

Comment: All launched in 1941 and now used as platforms for mine clearance divers. *M 20* of this class was re-rated as tender and renamed *Skuld*, but was converted back again in 1993. All five were modernised in 1992-93 and are also used for navigation training.

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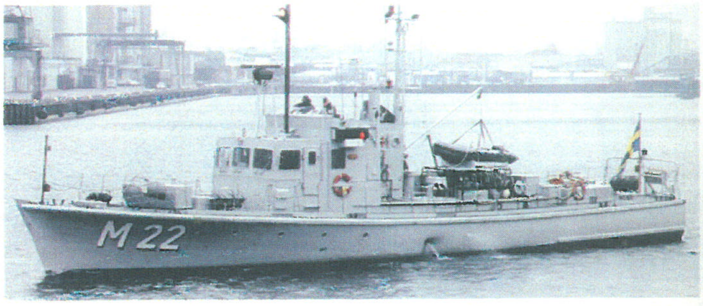

M 22 *11/2002, Per Körnefeldt* / 0529919

TUGS

1 OCEAN TUG (ATA/AGB)

ACHILLES A 251

Displacement, tons: 450 full load
Dimensions, feet (metres): 108.2 × 28.9 × 15.1 *(33 × 8.8 × 4.6)*
Main machinery: 1 diesel; 1,650 hp(m) *(1.2 MW)*; 1 shaft
Speed, knots: 12
Complement: 12
Radars: Navigation: Racal Decca 1226C; I-band.

Comment: Launched in 1962. Icebreaking tug.

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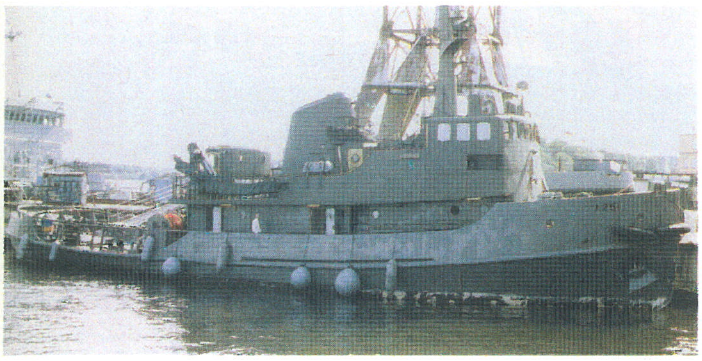

ACHILLES *6/2000, E & M Laursen* / 0106590

4 COASTAL TUGS (YTM)

HERMES A 253 **HEROS** A 322 **HERCULES** A 323 **HERA** A 324

Displacement, tons: 185 standard; 215 full load
Dimensions, feet (metres): 80.5 × 22.6 × 13.1 *(24.5 × 6.9 × 4)*
Main machinery: 1 diesel; 600 hp(m) *(441 kW)*; 1 shaft
Speed, knots: 11
Complement: 8

Comment: Details given for the first pair launched 1953-57. Second pair are smaller at 127 tons and were launched in 1969-71. All are icebreaking tugs.

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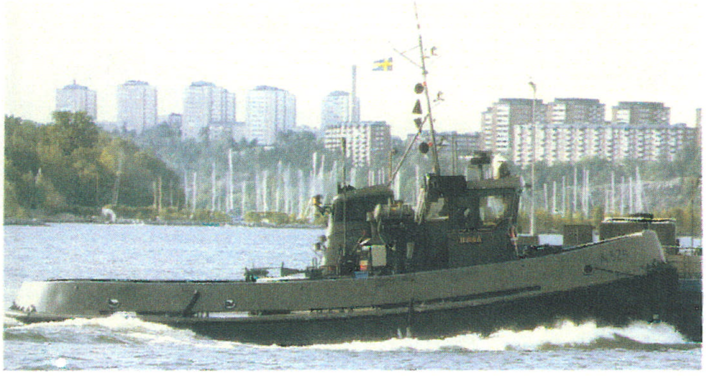

HERA *6/2000, E & M Laursen* / 0106591

11 COASTAL TUGS (YTL)

A 701-705, 751-756

Displacement, tons: 42 full load
Dimensions, feet (metres): 50.9 × 16.4 × 8.9 *(15.5 × 5 × 2.7)*
Main machinery: 1 diesel; 1 shaft
Speed, knots: 9.5
Complement: 6

Comment: Can carry 40 people. Icebreaking tugs. *701-703* used by Coastal Artillery. All can carry mines.

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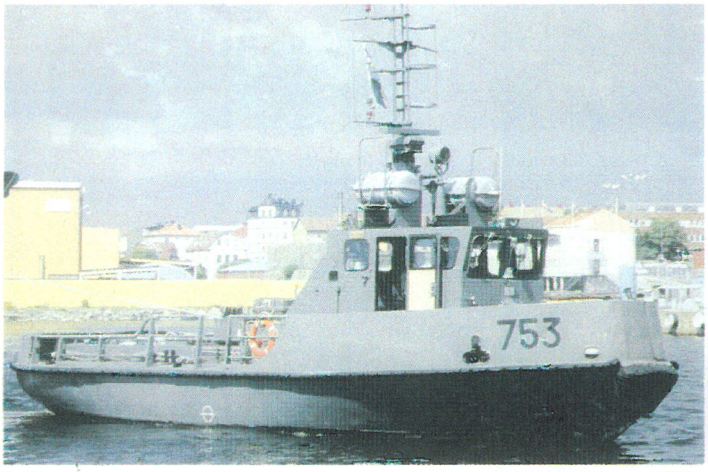


A 753 *6/2003*, L-G Nilsson* / 0572637

COAST GUARD (KUSTBEVAKNING)

Establishment: Established in 1638, and for 350 years was a part of the Swedish Customs administration. From 1 July 1988 the Coast Guard became an independent civilian authority with a Board supervised by the Ministry of Defence. Organised in four regions with a central Headquarters.
Duties: Responsible for civilian surveillance of Swedish waters, fishery zone and continental shelf. Supervises and enforces fishing regulations, customs, dumping and pollution regulations, environmental protection and traffic regulations. Also concerned with prevention of drug running and forms part of the Swedish search and rescue organisation.

Headquarters Appointments **Personnel:** 2004: 583 **Aircraft:** Four CASA 212.

Director General:
Marie Hafstrom

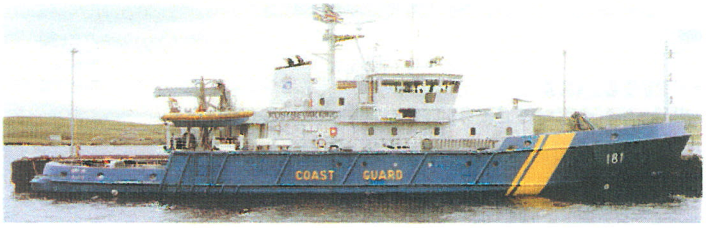
Ships: Tv pennant numbers replaced by KBV in 1988 but the KBV is not displayed. Vessels are not normally armed.

1 KBV 181 CLASS (HIGH ENDURANCE CUTTER) (WHEC/PBO)

KBV 181

Displacement, tons: 991 full load
Dimensions, feet (metres): 183.7 oa; 167.3 wl × 33.5 × 15.1 *(56; 51 × 10.2 × 4.6)*
Main machinery: 2 Wärtsilä Vasa 8R22 diesels; 3,755 hp(m) *(2.76 MW)* sustained; 1 shaft; Kamewa cp prop; bow thruster
Speed, knots: 16. **Range, miles:** 2,800 at 15 kt
Complement: 11
Guns: 1 Oerlikon 20 mm (if required).
Radars: Navigation: Furuno FAR 2830; I-band.
Sonars: Simrad Subsea; active search; high frequency.

Comment: Ordered from Rauma Shipyards in August 1989 and built at Uusikaupunki. Commissioned 30 November 1990. Unarmed in peacetime. Equipped as a Command vessel for SAR and anti-pollution operations. All-steel construction similar to Finnish *Tursas*. ***VERIFIED***



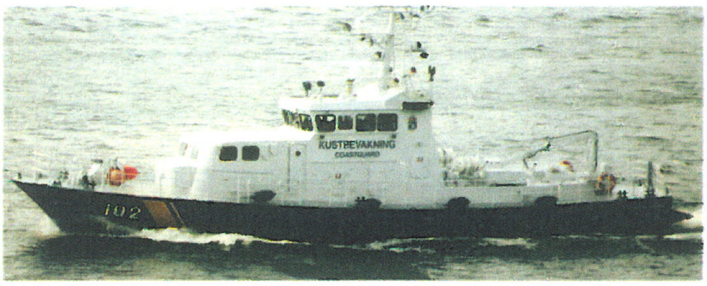
KBV 181 *6/2000, B Sullivan* / 0106592

2 KBV 101 CLASS (MEDIUM ENDURANCE CUTTERS) (WMEC/PB)

KBV 104-105

Displacement, tons: 65 full load
Dimensions, feet (metres): 87.6 × 16.4 × 7.2 *(26.7 × 5 × 2.2)*
Main machinery: 2 Cummins KTA38-M diesels; 2,120 hp *(1.56 MW)*; 2 shafts
Speed, knots: 21. **Range, miles:** 1,000 at 15 kt
Complement: 5 plus 2 spare
Sonars: Hull-mounted; active search; high frequency.

Comment: Built 1969-73 at Djupviksvarvet. Class A cutters. All-welded aluminium hull and upperworks. Equipped for salvage divers. Modernisation with new diesels, a new bridge and new electronics completed in 1988. *KBV 101* transferred to Lithuania in 1996. ***UPDATED***



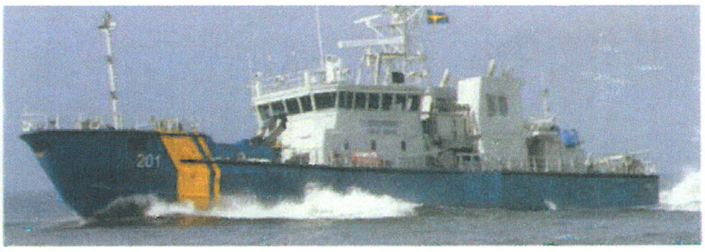
KBV 101 class *5/1994, E & M Laursen* / 0080758

2 KBV 201 CLASS (HIGH ENDURANCE CUTTERS) (WHEC/PBO)

KBV 201 **KBV 202**

Displacement, tons: 476 full load
Dimensions, feet (metres): 170.6 × 28.2 × 7.9 *(52 × 8.6 × 2.4)*
Main machinery: 2 MWM 610 diesels; 5,440 hp(m) *(4 MW)*; 2 MWM 616 diesels; 1,904 hp(m) *(1.4 MW)*; 2 shafts; Kamewa cp props; 2 bow thruster 424 hp(m) *(312 kW)*
Speed, knots: 21. **Range, miles:** 1,340 at 16 kt
Complement: 9
Radars: Navigation: E/F- and I-band.

Comment: Ordered from Kockums in January 1999 and built at Karlskrona. First one delivered in March 2001 and second in September 2001. Steel hulls. Multirole vessels for surveillance and environmental protection. Stern ramp for launching a RIB. ***UPDATED***



KBV 201 *6/2003*, Swedish Coast Guard* / 0572609

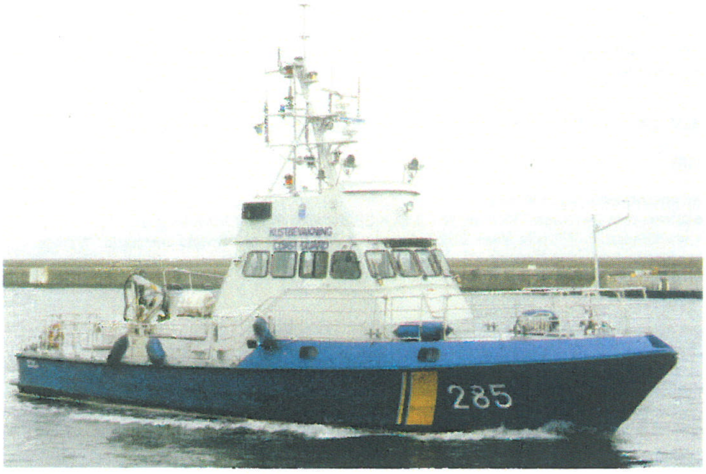
7 KBV 281 CLASS (MEDIUM ENDURANCE CUTTERS) (WMEC/PB)

KBV 281-287

Displacement, tons: 45 full load
Dimensions, feet (metres): 71.5 × 16.4 × 6.2 *(21.8 × 5 × 1.9)*
Main machinery: 2 Cummins KTA38-M or MWM diesels; 2,120 hp *(1.56 MW)*; 2 shafts
Speed, knots: 27
Complement: 4
Radars: Navigation: Furuno; I-band.

Comment: Built by Djupviksvarvet and delivered at one a year from 1979. Last one commissioned in 1990. Aluminium hulls. Some of the class have an upper bridge.

VERIFIED



KBV 285 *3/1998, Per Körnefeldt /* 0050209

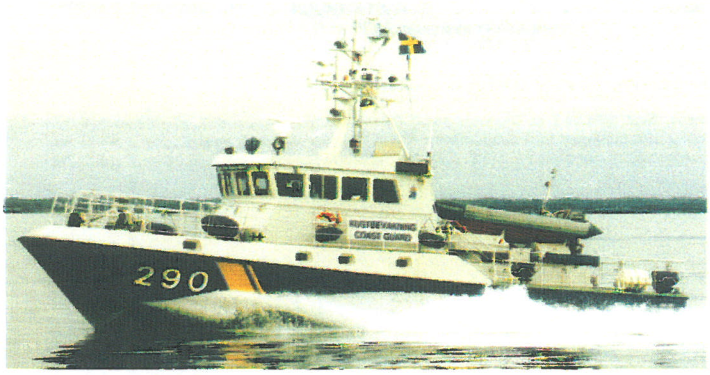
3 KBV 288 CLASS (MEDIUM ENDURANCE CUTTERS) (WMEC/PBO)

KBV 288-290

Displacement, tons: 53 full load
Dimensions, feet (metres): 71.5 × 17.7 × 5.9 *(21.8 × 5.4 × 1.8)*
Main machinery: 2 Cummins KTA38-M or MWM diesels; 2,120 hp *(1.56 MW)*; 2 shafts
Speed, knots: 24
Complement: 5
Radars: Navigation: Furuno; I-band.

Comment: An improved design of the KBV 281 class which entered service 1990-93.

VERIFIED



KBV 290 *5/1999, Per Körnefeldt /* 0080759

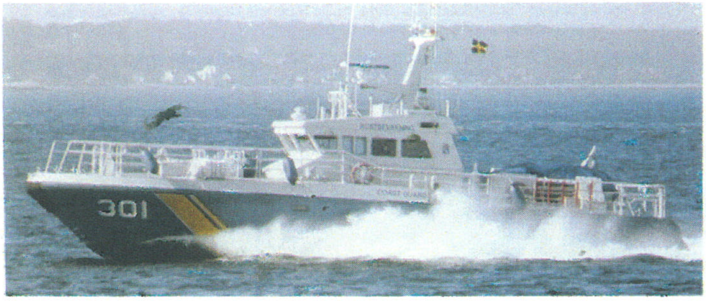
16 KBV 301 CLASS (MEDIUM ENDURANCE CUTTERS) (WMEC/PB)

KBV 301-316

Displacement, tons: 35 full load
Dimensions, feet (metres): 65.6 × 15.1 × 3.6 *(20 × 4.6 × 1.1)*
Main machinery: 2 MTU 183 TE92 diesels; 1,830 hp(m) *(1.35 MW)* sustained; 2 MTP 7500S or Kamewa water-jets
Speed, knots: 34. **Range, miles:** 500 at 25 kt
Complement: 4
Radars: Navigation: 2 Kelvin Hughes 6000; I-band.

Comment: Built at Karlskronavarvet. First one delivered in May 1993 and the remainder ordered in December 1993. Three delivered in 1995, four in 1996 and the last three in 1997.

UPDATED



KBV 301 *3/2003*, Per Körnefeldt /* 0572638

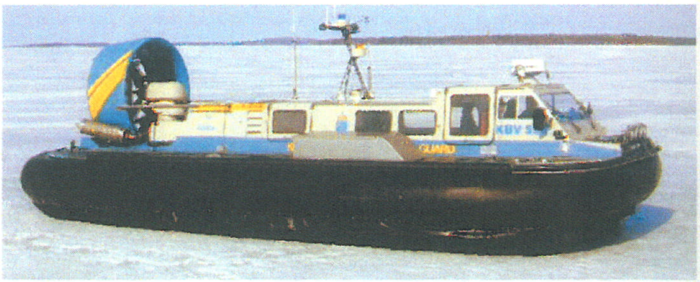
3 KBV 591 (GRIFFON 2000 TDX) CLASS (HOVERCRAFT) (UCAC)

KBV 591-593

Displacement, tons: 3.5 full load
Dimensions, feet (metres): 38.4 × 19.4 *(11.7 × 5.9)*
Main machinery: 1 Deutz BF8L diesel; 350 hp(m) *(235 kW)*
Speed, knots: 50. **Range, miles:** 450 at 35 kt
Complement: 3
Radars: Navigation: Furuno 7010 D; I-band.

Comment: Built by Griffon Hovercraft, Southampton and delivered in 1992-93. Aluminium hulls. Based at Stockholm, Lutea and Umea.

UPDATED



KBV 591 *6/2003*, Swedish Coast Guard /* 0572610

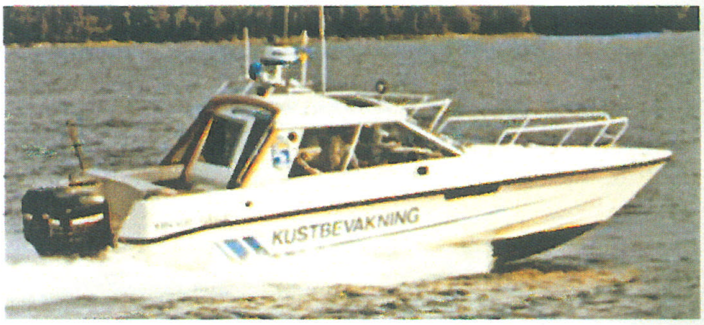
60 COAST GUARD PATROL CRAFT (SMALL) (PB)

KBV 401-408 **+ 52**

Displacement, tons: 2.2 full load
Dimensions, feet (metres): 29.7 × 8.5 × 2.9 *(9.05 × 2.6 × 0.9)*
Main machinery: 2 Yamaha outboard engines; 500 hp *(372 kW)*
Speed, knots: 55. **Range, miles:** 100 at 35 kt
Complement: 3

Comment: Details are for *KBV 401-408* built in 1994-95. There is a total of some 60 speed boats with Raytheon radars.

UPDATED

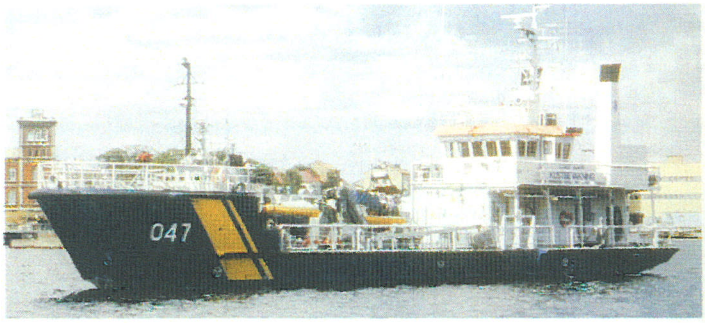


KBV 408 *6/2003*, Swedish Coast Guard /* 0572612

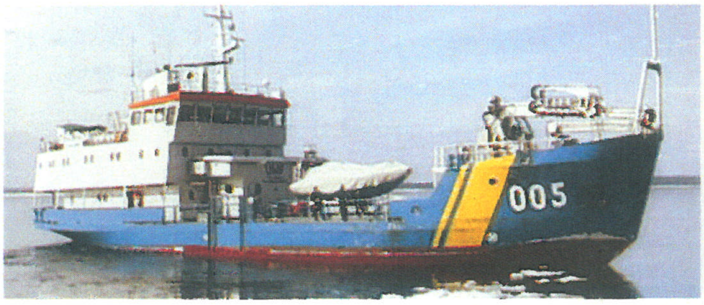
POLLUTION CONTROL CRAFT (YPC)

Number	*Displacement (tons)*	*Comment*
KBV 004	450	Built by Lunde in 1978. Has helipad and carries salvage divers.
KBV 005	990	Ice Class 1A built in 1980 and acquired in 1993.
KBV 006	450	Built by Lunde in 1985.
KBV 010	400	Built by Lunde in 1985. Oil spill clean-up craft.
KBV 020	60	Catamaran design built by Djupviks in 1982.
KBV 044	100	Class B Sea Trucks built by Djupviks in 1976. Oil spill clean-up craft.
KBV 045-049	230	Pollution control craft built by Lunde 1980-83. Have bow ramp.
KBV 050-051	340	Enlarged version of KBV 045 class with bow ramp. Built by Lunde in 1983.

UPDATED



KBV 047 *6/2003*, Per Körnefeldt /* 0572639



KBV 005 *6/2003*, Swedish Coast Guard /* 0572611

Switzerland

Country Overview

A landlocked western European country, Switzerland has an area of 15,940 square miles and is bordered by France, Germany, Austria, Liechtenstein and Italy. The largest city is Zurich and the capital is Bern. The principal lakes are Lake Geneva in the southwest and Lake Constance in the northeast. Others not wholly within Swiss borders are Lake Lugano and Lake Maggiore. The river Rhine, whose source is in the Swiss Alps, is navigable northwards and downstream from the port of Basel. The patrol boats are split between lakes Constance, Geneva and Maggiore; one company to each.

Diplomatic Representation

Defence Attaché in London:
Colonel B Stoll

ARMY

Notes: There are also large numbers of flat bottomed raiding craft powered by single 40 hp outboard engines.

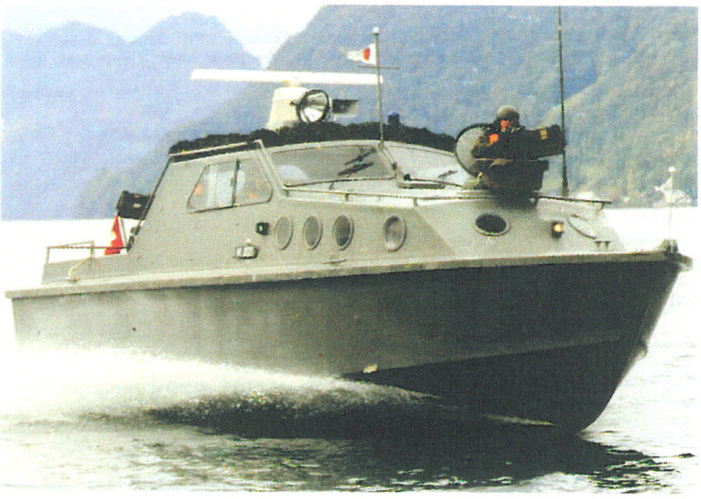
11 AQUARIUS CLASS (Patrouillenboot 80) (PBR)

ANTARES	AQUARIUS	ORION	SATURN
URANUS	CASTOR	PERSEUS	SIRIUS
VENUS	MARS	POLLUX	

Displacement, tons: 7 full load
Dimensions, feet (metres): 35.1 × 10.8 × 3 *(10.7 × 3.3 × 0.9)*
Main machinery: 2 Volvo KAD 3 diesels; 460 hp(m) *(338 kW)*; 2 shafts
Speed, knots: 35
Complement: 7
Guns: 2—12.7 mm MGs.
Radars: Surface search: JFS Electronic 364; I-band.

Comment: Builders Müller AG, Spiez. GRP hulls, wooden superstructure. *Aquarius* commissioned in 1978, *Pollux* in 1984, the remainder in 1981. Re-engined with diesels which have replaced the former petrol engines.

UPDATED



AQUARIUS
10/1997, Swiss Army / 0019223

Syria

Country Overview

The Syrian Arab Republic was proclaimed in 1961 following brief federation with Egypt as the United Arab Republic from 1958. Situated in the Middle East, the country has an area of 71,498 square miles and is bordered to the north by Turkey, to the east by Iraq, to the south by Jordan and Israel and to the west by Lebanon. It has a 104 n mile coastline with the Mediterranean Sea. The capital and largest city is Damascus while the principal ports are Latakia and Tartus. It is the only country to claim 35 n mile Territorial seas. An EEZ is not claimed.

Headquarters Appointments

Commander-in-Chief Navy:
Rear Admiral Mohammed Qassem
Director of Naval Operations:
Rear Admiral Hamed Makrin

Organisation

Naval Forces come under the command of the Chief of General Staff, Commander of Land Forces.

Personnel

(a) 2004: 3,200 officers and men (2,500 reserves)
(b) 18 months' national service

Bases

Latakia, Tartous, Al-Mina-al-Bayda, Baniyas

Coast Defence

Coastal defence has been under naval control since 1984. A missile brigade is equipped with SS-C-1 Sepal and SS-C-3 Styx with sites at Tartous (2), Baniyas and Latakia. Two artillery battalions have a total of 36—130 mm guns and 12—100 mm guns. Coastal observation sites are manned by an Observation Battalion. There are two infantry brigades each of which is assigned to a coastal zone.

DELETIONS

Mine Warfare Forces

2001	1 T-43

Auxiliaries

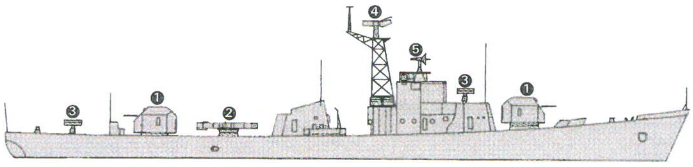
2001	1 Poluchat

FRIGATES

2 PETYA III (PROJECT 159A) CLASS (FFL)

1-508 (ex-*12*)

AL HIRASA 2-508 (ex-*14*)



PETYA 1-508 *(Scale 1 : 900), Ian Sturton*

Displacement, tons: 950 standard; 1,180 full load
Dimensions, feet (metres): 268.3 × 29.9 × 9.5 *(81.8 × 9.1 × 2.9)*
Main machinery: CODAG; 2 gas turbines; 30,000 hp(m) *(22 MW)*; 1 Type 61V-3 diesel; 5,400 hp(m) *(3.97 MW)* sustained (centre shaft); 3 shafts
Speed, knots: 32. **Range, miles:** 4,870 at 10 kt; 450 at 29 kt
Complement: 98 (8 officers)

Guns: 4—3 in *(76 mm)*/60 (2 twin) ❶; 90 rds/min to 15 km *(8 n miles)*; weight of shell 6.8 kg.
Torpedoes: 3—21 in *(533 mm)* (triple) tubes ❷. SAET-60; active/passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 100 kg.
A/S mortars: 4 RBU 2500 16-tubed trainable ❸; range 2,500 m; warhead 21 kg.
Depth charges: 2 racks.
Mines: Can carry 22.
Radars: Surface search: Slim Net ❹; E/F-band.
Navigation: Don 2; I-band.
Fire control: Hawk Screech ❺; I-band.
IFF: High Pole B. 2 Square Head.
Sonars: Herkules; hull-mounted; active search and attack; high frequency.

Programmes: Transferred by the USSR in July 1975 and March 1975.
Operational: Based at Tartous. *2-508* in dock in mid-1998 to 2000 and reported to be sea-going. The operational status of *1-508* is not known.

VERIFIED

AL HIRASA
6/2001 / 0121400

LAND-BASED MARITIME AIRCRAFT

Numbers/Type: 11/2 Mil Mi-14P Haze A/Haze C.
Operational speed: 124 kt *(230 km/h).*
Service ceiling: 15,000 ft *(4,570 m).*
Range: 432 n miles *(800 km).*
Role/Weapon systems: Medium-range ASW helicopter. Sensors: Short Horn search radar, dipping sonar, MAD, sonobuoys. Weapons: ASW; internally stored torpedoes, depth mines and bombs.

VERIFIED

Numbers/Type: 2 Kamov Ka-28 Helix.
Operational speed: 135 kt *(250 km/h).*
Service ceiling: 19,685 ft *(6,000 m).*
Range: 432 n miles *(800 km).*
Role/Weapon systems: ASW helicopter. Delivered in February 1990. Sensors: Splash Drop search radar, dipping sonar, sonobuoys, MAD, ECM. Weapons: ASW; 3 torpedoes, depth bombs, mines.

VERIFIED

PATROL FORCES

10 OSA (PROJECT 205) CLASS (FAST ATTACK CRAFT—MISSILE) (PTFG)

31-32 (OSA I) **33-40 (OSA II)**

Displacement, tons: 245 full load
Dimensions, feet (metres): 126.6 × 24.9 × 8.8 *(38.6 × 7.6 × 2.7)*
Main machinery: 3 Type M 504 (Osa II)/M 503 (Osa I) diesels; 8,025/10,800 hp(m) *(6.0/8.1 MW)* sustained; 3 shafts
Speed, knots: 35 (Osa I), 37 (Osa II). **Range, miles:** 500 at 35 kt
Complement: 25 (3 officers)

Missiles: SSM: 4 SS-N-2C; active radar or IR homing to 83 km *(43 n miles)* at 0.9 Mach; warhead 513 kg; sea-skimmer at end of run.
Guns: 4—30 mm/65 (2 twin); 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
Countermeasures: Decoys: PK 16 chaff launcher.
Radars: Surface search: Square Tie; I-band.
Fire control: Drum Tilt; H/I-band.
IFF: 2 Square Head. High Pole A or B.

Programmes: Delivered: October 1979 (two), November 1979 (two), August 1982 (one), September 1982 (one) and May 1984 (two). Others have already been deleted.
Structure: Two are modified (Nos 39 and 40).
Operational: OSA II based at Latakia. All are still fully operational and active. Two Osa Is (31 and 32) at Tartous also reported to be operational again. The Osa Is may be fitted with SSN 2A/B.

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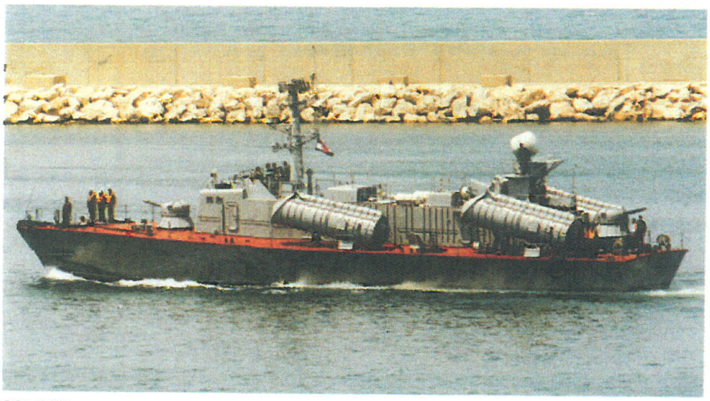

OSA II 38 *6/1998* / 0050214

8 ZHUK (GRIF) (PROJECT 1400M) CLASS (COASTAL PATROL CRAFT) (PB)

1-8 **2-8** **3-8** **4-8** **5-8** **6-8** **7-8** **8-8**

Displacement, tons: 39 full load
Dimensions, feet (metres): 78.7 × 16.4 × 3.9 *(24 × 5 × 1.2)*
Main machinery: 2 Type M 401B diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,100 at 15 kt
Complement: 11 (3 officers)
Guns: 4—14.5 mm (2 twin) MGs.
Radars: Surface search: Spin Trough; I-band.

Comment: Three transferred from USSR in August 1981, three on 25 December 1984 and two more in the late 1980s. All based at Tartous but most are non-operational.

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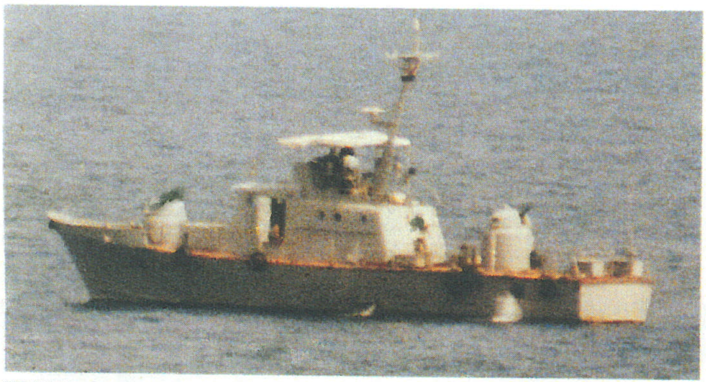


ZHUK 5-8 *6/1998* / 0050215

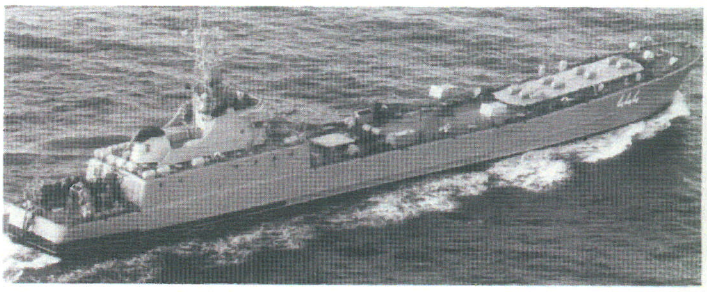
AMPHIBIOUS FORCES

3 POLNOCHNY B CLASS (PROJECT 771) (LSM)

1-114 **2-114** **3-114**

Displacement, tons: 760 standard; 834 full load
Dimensions, feet (metres): 246.1 × 31.5 × 7.5 *(75 × 9.6 × 2.3)*
Main machinery: 2 Kolomna Type 40-D diesels; 4,400 hp(m) *(3.2 MW)* sustained; 2 shafts
Speed, knots: 19. **Range, miles:** 1,500 at 15 kt
Complement: 40
Military lift: 180 troops; 350 tons cargo
Guns: 4—30 mm/65 (2 twin); 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg. 2—140 mm rocket launchers; 18 barrels per launcher; range 9 km *(5 n miles).*
Radars: Surface search: Spin Trough; I-band.
Fire control: Drum Tilt; H/I-band.

Comment: Built at Northern Shipyard, Gdansk. First transferred from USSR January 1984, two in February 1985 from Black Sea. All based at Tartous and still active. ***VERIFIED***



POLNOCHNY B (Russian colours) *1988*

MINE WARFARE FORCES

1 NATYA (PROJECT 266M) CLASS (MSC/AGORM)

642

Displacement, tons: 804 full load
Dimensions, feet (metres): 200.1 × 33.5 × 10.8 *(61 × 10.2 × 3)*
Main machinery: 2 Type 504 diesels; 5,000 hp(m) *(3.67 MW)* sustained; 2 shafts
Speed, knots: 16. **Range, miles:** 3,000 at 12 kt
Complement: 65
Missiles: SAM: 2 SA-N-5 Grail quad launchers; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg; 16 missiles.
Guns: 4—30 mm/65 (2 twin) can be fitted.
Radars: Surface search: Don 2; I-band.
Fire control: Drum Tilt; H/I-band.

Comment: Arrived in Tartous from USSR in January 1985. Has had sweeping gear and guns removed and converted to serve as an AGOR. Painted white. Based at Latakia in reasonable condition. Reported active.

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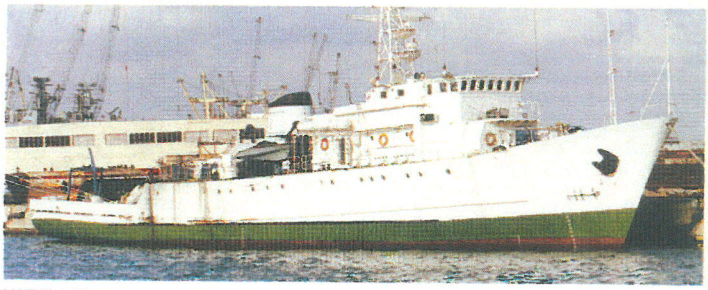


NATYA 642 *6/1996* / 0080764

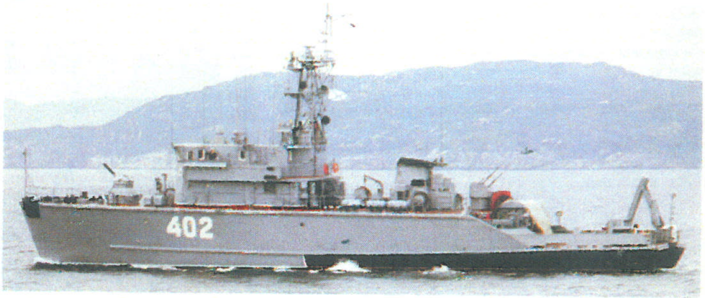
1 SONYA (TYPE 1265) CLASS (MSC)

532

Displacement, tons: 450 full load
Dimensions, feet (metres): 157.4 × 28.9 × 6.6 *(48 × 8.8 × 2)*
Main machinery: 2 Kolomna Type 9-D-8 diesels; 2,000 hp(m) *(1.47 MW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 3,000 at 10 kt
Complement: 43
Guns: 2—30 mm/65 (twin) or 2—30 mm/65 AK 630. 2—25 mm/80 (twin).
Mines: 8.
Radars: Surface search: Don 2; I-band.
IFF: 2 Square Head. 1 High Pole B.
Sonars: MG 69; hull-mounted; active; high frequency.

Comment: Wooden hull. Made passage from USSR in December 1985, transferred January 1986. Based at Tartous. Operational status doubtful.

UPDATED



SONYA (Russian colours) *8/2002** / 0528318

3 YEVGENYA (PROJECT 1258) CLASS (MINESWEEPERS—INSHORE) (MSI/PC)

6-507	7-507	8-507

Displacement, tons: 77 standard; 90 full load
Dimensions, feet (metres): 80.7 × 18 × 4.9 *(24.6 × 5.5 × 1.5)*
Main machinery: 2 Type 3-D-12 diesels; 600 hp(m) *(444 kW)*; 2 shafts
Speed, knots: 11. **Range, miles:** 300 at 10 kt
Complement: 10
Guns: 2—14.5 mm (twin) MGs (first pair). 2—25 mm/80 (twin) (second pair).
Radars: Surface search: Spin Trough; I-band.
IFF: High Pole.
Sonars: MG-7; stern-mounted VDS; active; high frequency.

Comment: First transferred from USSR 1978, two in 1985 and two in 1986. Second pair by Ro-flow from Baltic in February 1985 being new construction with tripod mast. Based at Tartous, at least two are operational. Two others have been deleted.

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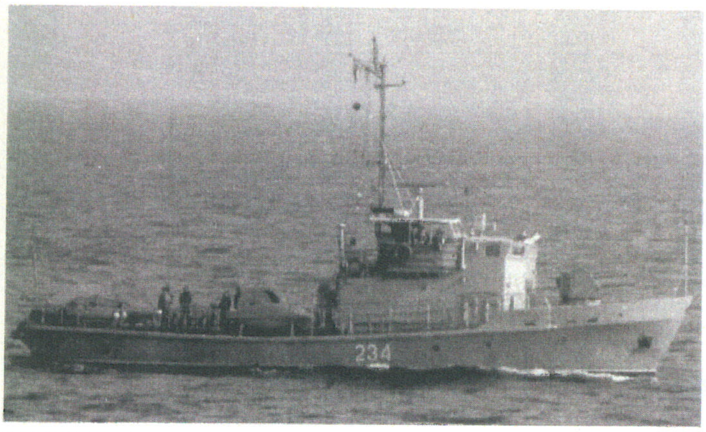


YEVGENYA (Russian colours) *1991*

TRAINING SHIPS

1 TRAINING SHIP (AX/AKR)

AL ASSAD

Displacement, tons: 3,500 full load
Dimensions, feet (metres): 344.5 × 56.4 × 13.1 *(105 × 17.2 × 4)*
Main machinery: 2 Zgoda-Sulzer 6ZL40/48 diesels; 8,700 hp(m) *(6.4 MW)*; 2 shafts; bow thruster
Speed, knots: 16. **Range, miles:** 4,500 at 15 kt
Complement: 56 plus 140 cadets
Radars: Navigation: Decca Seamaster; E/F- and I-band.

Comment: Built in Polnochny Shipyard, Gdansk and launched 18 February 1987. Delivered in late 1988. Ro-ro design used as a naval training ship. Unarmed but has minelaying potential. Based at Latakia and occasionally deploys on cruises.

UPDATED

AL ASSAD *7/2003**, ***B Prézelin*** / 0570996

Taiwan

REPUBLIC OF CHINA

Country Overview

The Republic of China was established in 1949 when the Nationalist government of China withdrew to Taiwan (Formosa) and established its headquarters. Though in practice an autonomous state, Taiwan is still formally a province of China and, as such, is claimed by the People's Republic of China. The country comprises the island of Taiwan (area 13,900 square miles), the Pescadores, or P'eng-hu Islands, the Quemoy Islands off the mainland city of Amoy (Xiamen), and the Matsu group off Fuzhou (Foochow). It has a 783 n mile coastline with East China Sea, Pacific Ocean and South China Sea. The capital and largest city of Taiwan is Taipei while Chi-lung (Keelung), Hualien, Kaohsiung and T'ai-chung are the principal ports. Territorial seas (12 n miles) are claimed. A 200 n mile EEZ and Fishery Zone have also been claimed.

Headquarters Appointments

Commander-in-Chief:
Admiral Yung-Ching Miao
Deputy Commanders-in-Chief:
Vice Admiral Chung-Ting Wei
Vice Admiral Yang Kao
Commandant of Marine Corps:
Lieutenant General Lin-Lian Jih
Director of Logistics:
Vice Admiral Chu-Shen Hsu

Senior Flag Officers

Fleet Commander:
Vice Admiral Chen-Yi Lin
Director of Logistics:
Vice Admiral Chung-Ting Wei

Personnel

(a) 2004: 33,500 in Navy, 15,000 in Marine Corps
(b) 2 years' conscript service

Bases

Tsoying: HQ First Naval District (Southern Taiwan, Pratas and Spratly). Main Base, HQ of Fleet Command, Naval Aviation Group and Marine Corps. Base of southern patrol and transport squadrons. Officers and ratings training, Naval Academy, Naval shipyard.

Bases — *continued*

Kaohsiung; Naval shipyard.
Makung (Pescadores): HQ Second Naval District (Pescadores, Quemoy and Wu Ch'iu). Base for attack squadrons. Naval shipyard and training facilities.
Keelung: HQ Third Naval District (Northern Taiwan and Matsu group). Base of northern patrol and transport squadrons. Naval shipyard.
Hualien: Naval Aviation Command.
Suao: East Coast Command, submarine depot and shipyard.
Minor bases at Hualien, Tamshui, Hsinchu, Wuchi and Anping.
Building: Taitung.

Organisation

1. Fleet Command:
124th Attack squadron, based at Tsoying
131st Patrol squadron, based at Keelung
142nd Support squadron, based at Kaohsiung
146th Attack squadron, based at Pescadores
151st Amphibious squadron, based at Tsoying
168th Patrol squadron, based at Suao
192nd Mine Warfare squadron, based at Tsoying
256th Submarine Unit, based at Tsoying.

2. Naval Aviation Command: There are two Groups. The fixed-wing Group consists of two squadrons (133 and 134) and the helicopter Group of three squadrons (501, 701 and 702). Land bases include Tsoying, Hualien, Hsinchu and Pintung.

Coast Defence

The land-based SSM command has six squadrons equipped with Hsiung-Feng II SSM at Tonying Island of the Matsu Group, Siyu Island of the Pescadores, Shiao Liuchiu off Kaohsiung, north of Keelung harbour, Tsoying naval base and Hualien. The ROCMC deploy eight SAM Platoons, equipped with Chaparral SAM quad-launchers, to the offshore island of Wuchiu, and Pratas islets in the South China Sea. There are also a number of 127 mm guns.

Marine Corps

Reduced to two brigades by mid-2000 supported by one amphibious regiment and one logistics regiment. Equipped with M-116, M-733, LARC-5, LVTP5 (to be replaced by AAV-7A-IRAM/RS) personnel carriers and LVTH6 armour tractors. Based at Tsoying and in southern Taiwan. Spratly detachment provided by the Coast Guard from 1 January 2000 and Marine Corps detachment withdrawn from Pratas Islands at the same time.

Coast Guard

Formerly the Maritime Security Police but name changed on 1 January 2000. Comes under the Minister of the Interior but its numerous patrol boats are integrated with the Navy for operational purposes.

Strength of the Fleet

Type	*Active (Reserve)*	*Building/ Transfer (Planned)*
Submarines	4	(6)
Destroyers	7	4
Frigates	21	1
Corvettes	—	(10)
Fast Attack Craft (Missile)	48	(29)
Large Patrol Craft	19	—
Ocean Minesweepers	4	—
Coastal Minesweepers/Hunters	8	(2)
LSD	2	(1)
Landing Ships (LST and LSM)	17	4
LCUs	18	—
Survey Ships	1	—
Combat Support Ships	1	—
Transports	4	—
Salvage Ships	4	—
Support Tankers	2	—
Customs	10+	—

DELETIONS

Mine Warfare Forces

2001	*Yung Ching, Yung Chung*

Auxiliaries

2001	*Wan An, Ta Peng, Ta De, Ta Tung*

PENNANT LIST

Submarines

791	Hai Shih
792	Hai Bao
793	Hai Lung
794	Hai Hu

Destroyers

912	Chien Yang
921	Liao Yang
923	Shen Yang
925	Te Yang
927	Yun Yang
928	Chen Yang
929	Shao Yang
1801	Chi De
1802	Ming De
1803	Tong De
1805	Wu De

Frigates

932	Chin Yang
933	Fong Yang
934	Feng Yang
935	Lan Yang
936	Hae Yang
937	Hwai Yang
938	Ning Yang
939	Yi Yang
1101	Cheng Kung
1103	Cheng Ho
1105	Chi Kuang
1106	Yueh Fei
1107	Tzu-I
1108	Pan Chao
1109	Chang Chien
1110	Tien Tan (bldg)
1202	Kang Ding
1203	Si Ning
1205	Kun Ming
1206	Di Hua
1207	Wu Chang
1208	Chen Te

Patrol Forces

PCL 1	Ning Hai
PCL 2	An Hai
601	Lung Chiang
602	Sui Chiang
603	Jin Chiang
605	Tan Chiang
606	Hsin Chiang
607	Feng Chiang
608	Tseng Chiang
609	Kao Chiang
610	Jing Chiang
611	Hsian Chiang
612	Tsi Chiang
614	Po Chiang
615	Chan Chiang
617	Chu Chiang

Amphibious Forces

191	Chung Cheng
193	Shiu Hai
201	Chung Hai
205	Chung Chien
208	Chung Shun
216	Chung Kuang
217	Chung Chao
218	Chung Chi
221	Chung Chuan
226	Chung Chih
227	Chung Ming
230	Chung Pang
231	Chung Yeh
232	Chung Ho
233	Chung Ping
341	Mei Chin
347	Mei Sung
353	Mei Ping
356	Mei Lo
401	Ho Chi
402	Ho Huei
403	Ho Yao
406	Ho Chao
481	Ho Shun
484	Ho Chung
488	Ho Shan
489	Ho Chuan
490	Ho Seng
491	Ho Meng
492	Ho Mou
493	Ho Shou
494	Ho Chun
495	Ho Yung
LCC1	Kao Hsiung
SB 1	Ho Chie
SB 2	Ho Ten

Mine Warfare Forces

158	Yung Chuan
162	Yung Fu
167	Yung Ren
168	Yung Sui
1301	Yung Feng
1302	Yung Chia
1303	Yung Ting
1305	Yung Shun
1306	Yung Yang
1307	Yung Tzu
1308	Yung Ku
1309	Yung Teh

Auxiliaries and Survey Ships

507	Chang Bai
515	Lung Chuan
517	Hsin Lung
524	Yuen Feng
525	Wu Kang
526	Hsin Kang
530	Wu Yi
552	Ta Hu
1601	Ta Kuan

Tugs

ATF 551	Ta Wan
ATF 553	Ta Han
ATF 554	Ta Kang
ATF 555	Ta Fung
ATF 563	Ta Tai

SUBMARINES

Notes: Project Kwang Hua 8: Following the announcement in 2001 by the US government that it will support the acquisition of eight diesel submarines, debate has centred on how these will be procured. The 'Barbel' class was the last conventionally powered submarine to enter USN service in 1959-60. The licence of a design from a third country has proved to be problematic in view of the re-affirmation of earlier decisions by the governments of the Netherlands (1992) and Germany (1993) not to grant export licences for Taiwan. Efforts to sell the 'Agosta' class were similarly discouraged by the French government while Australia has rejected expressions of interest in the 'Collins' class. An indigenous build programme remains a possibility although this would present significant technical and financial challenges.

2 HAI LUNG CLASS (SSK)

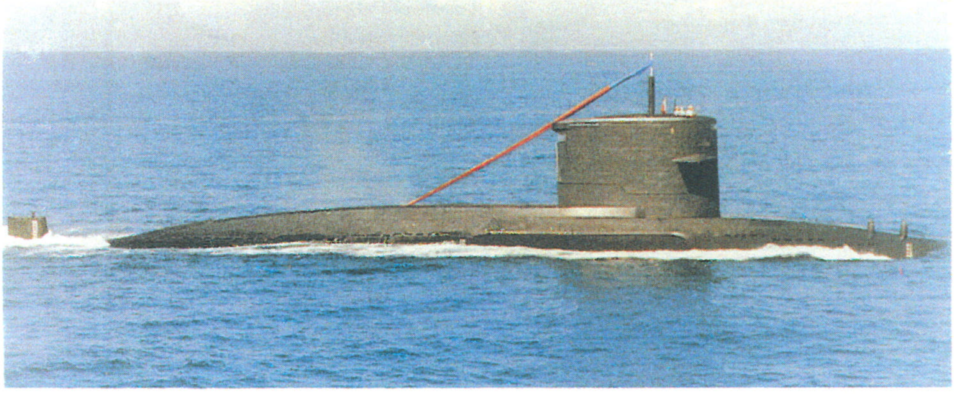
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HAI LUNG	793	Wilton Fijenoord, Netherlands	Dec 1982	6 Oct 1986	9 Oct 1987
HAI HU	794	Wilton Fijenoord, Netherlands	Dec 1982	20 Dec 1986	9 Apr 1988

Displacement, tons: 2,376 surfaced; 2,660 dived
Dimensions, feet (metres): 219.6 × 27.6 × 22 *(66.9 × 8.4 × 6.7)*
Main machinery: Diesel-electric; 3 Bronswerk D-RUB 215-12 diesels; 4,050 hp(m) *(3 MW)*; 3 alternators; 2.7 MW; 1 Holec motor; 5,100 hp(m) *(3.74 MW)*; 1 shaft
Speed, knots: 12 surfaced; 20 dived
Range, miles: 10,000 at 9 kt surfaced

Complement: 67 (8 officers)

Torpedoes: 6—21 in *(533 mm)* bow tubes. 20 AEG SUT; dual purpose; wire-guided; active/passive homing to 12 km *(6.6 n miles)* at 35 kt; warhead 250 kg.
Countermeasures: ESM: Argo AR 700SF and Elbit Timnex 4CH (V)2; intercept.
Weapons control: Sinbads M TFCS.

Radars: Surface search: Signaal ZW06; I-band.
Sonars: Signaal SIASS-Z; hull-mounted; passive/active intercept search and attack; low/medium frequency.
Fitted for but not with towed passive array.



Programmes: Order signed with Wilton Fijenoord in September 1981 for these submarines with variations from the standard Netherlands Zwaardvis design. Construction was delayed by the financial difficulties of the builders but was resumed in 1983. Sea trials of *Hai Lung* in March 1987 and *Hai Hu* in January 1988 and both submarines were shipped out on board a heavy dock vessel. The names mean *Sea Dragon* and *Sea Tiger*.
Structure: The four horns on the forward casing are Signaal sonar intercept transducers. Torpedoes manufactured under licence in Indonesia.
Operational: Hsiung Feng II submerged launch SSMs are planned to be part of the weapons load and a torpedo tube launched version is being developed, although no recent progress has been reported.

VERIFIED

HAI LUNG
1/2000, C Chung / 0106596

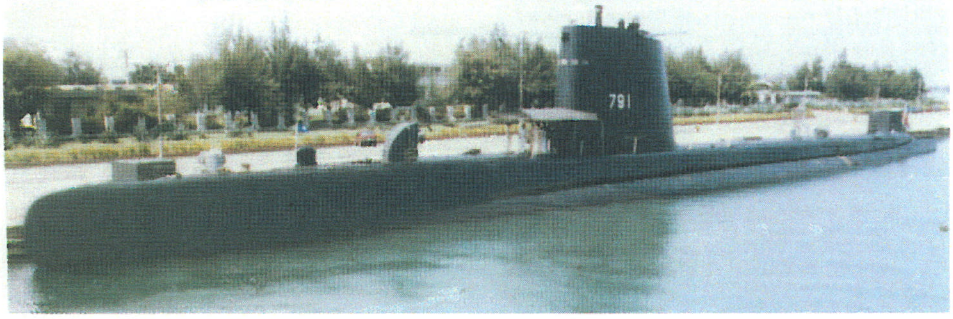
2 GUPPY II CLASS (SS)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HAI SHIH (ex-*Cutlass* SS 478)	791 (ex-SS 91)	Portsmouth Navy Yard	22 July 1944	5 Nov 1944	17 Mar 1945
HAI BAO (ex-*Tusk* SS 426)	792 (ex-SS 92)	Federal SB & DD Co, Kearney, New Jersey	23 Aug 1943	8 July 1945	11 Apr 1946

Displacement, tons: 1,870 standard; 2,420 dived
Dimensions, feet (metres): 307.5 × 27.2 × 18 *(93.7 × 8.3 × 5.5)*

Main machinery: Diesel-electric; 3 Fairbanks-Morse diesels; 4,500 hp *(3.3 MW)*; 2 Elliott motors; 5,400 hp *(4 MW)*; 2 shafts

Speed, knots: 18 surfaced; 15 dived
Range, miles: 8,000 at 12 kt surfaced
Complement: 75 (7 officers)



HAI SHIH
8/1990, DTM / 0053450

Torpedoes: 10—21 in *(533 mm)* (6 fwd, 4 aft) tubes. AEG SUT; active/passive homing to 12 km *(6.5 n miles)* at 35 kt; 28 km *(15 n miles)* at 23 kt; warhead 250 kg.
Countermeasures: ESM: WLR-1/3; radar warning.
Radars: Surface search: US SS 2; I-band.
Sonars: EDO BQR 2B; hull-mounted; passive search and attack; medium frequency.
Raytheon/EDO BQS 4C; adds active capability to BQR 2B.
Thomson Sintra DUUG 1B; passive ranging.

Programmes: Originally fleet-type submarines of the US Navy's 'Tench' class; extensively modernised under the Guppy II programme. *Hai Shih* transferred in April 1973 and *Hai Bao* in October the same year.
Structure: After 56 years in service diving depth is very limited.
Operational: Kept in service because of difficulty in buying replacements, but operational status doubtful. Likely to have an alongside training role only.

UPDATED

DESTROYERS

Notes: (1) Fully operational numbers of destroyers, frigates, corvettes and PGGs are restricted to a total of 48. As a new ship commissions, one of the older ships is paid off.
(2) Acquisition of the Aegis Combat System remains a firm aspiration but, following the decision to procure the 'Kidd' class DDGs as an interim measure, this is unlikely before 2012.

7 GEARING (WU CHIN III CONVERSION) (FRAM I) CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
CHIEN YANG (ex-*James E Kyes*)	912 (ex-DD 787)	Todd Pacific SY, Seattle, WA	27 Dec 1944	4 Aug 1945	8 Feb 1946
LIAO YANG (ex-*Hanson*)	921 (ex-DD 832)	Bath Iron Works Corporation	7 Oct 1944	11 Mar 1945	11 May 1945
SHEN YANG (ex-*Power*)	923 (ex-DD 839)	Bath Iron Works Corporation	26 Feb 1945	30 June 1945	13 Sep 1945
TE YANG (ex-*Sarsfield*)	925 (ex-DD 837)	Bath Iron Works Corporation	15 Jan 1945	27 May 1945	31 July 1945
YUN YANG (ex-*Hamner*)	927 (ex-DD 718)	Federal SB and DD Co	5 Apr 1945	24 Nov 1945	11 July 1946
CHEN YANG (ex-*Johnston*)	928 (ex-DD 821)	Consolidated Steel Corporation	6 May 1945	19 Oct 1945	10 Oct 1946
SHAO YANG (ex-*Hollister*)	929 (ex-DD 788)	Todd Pacific SY, Seattle, WA	18 Jan 1945	9 Oct 1945	26 Mar 1946

Displacement, tons: 2,425 standard; 3,540 full load
Dimensions, feet (metres): 390.5 × 41.2 × 19 *(119 × 12.6 × 5.8)*
Main machinery: 4 Babcock & Wilcox boilers; 600 psi *(43.3 kg/cm²)*; 850°F *(454°C)*; 2 GE turbines; 60,000 hp *(45 MW)*; 2 shafts
Speed, knots: 30. **Range, miles:** 6,080 at 15 kt
Complement: 275 approx

Missiles: SSM: 4 Hsiung Feng II (quad) ❶; active radar/IR homing to 80 km *(43.2 n miles)* at 0.85 Mach; warhead 190 kg.
SAM: 10 General Dynamics Standard SM1-MR (2 triple ❷; 2 twin ❸); command guidance; semi-active radar homing to 46 km *(25 n miles)* at 2 Mach.
A/S: Honeywell ASROC Mk 112 octuple launcher ❹; inertial guidance to 1.6-10 km *(1-5.4 n miles)*; payload Mk 46 torpedo.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 ❺; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
1 GE/GD 20 mm Vulcan Phalanx Block 1 6-barrelled Mk 15 ❻; 3,000 rds/min combined to 1.5 km.
2 Bofors 40 mm/70 ❼. 4 or 6—12.7 mm MGs.
Torpedoes: 6—324 mm US Mk 32 (2 triple) tubes ❽. Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg. Some Mk 44s are still in service.
Countermeasures: Decoys: 4 Kung Fen 6 16-tubed chaff launchers ❾.
Mk T-6 Fanfare torpedo decoy.
ESM/ECM: Chang Feng III (Hughes SLQ-17/SLQ-31) intercept and jammers.
Combat data systems: Ta Chen tactical datalink.
Weapons control: Honeywell H 930 MFCS Mk 114 system (for ASROC). Signaal LIOD Mk 2 optronic director. ❿
Radars: Air search: Signaal DA08 (with DA05 aerial) ⓫; E/F-band.
Surface search: Raytheon SPS-10 ⓬; G/I-band.
Fire control: Signaal STIR ⓭; I/J-band (for Standard and 76 mm).
Westinghouse W-160 ⓮; I-band (for Bofors).
Navigation: I-band.
Tacan: SRN 15.
Sonars: Raytheon SQS-23H; hull-mounted; active search and attack; medium frequency.

Helicopters: 1 McDonnell Douglas MD 500 ⓯.

Programmes: *Chien Yang* transferred 18 April 1973; *Liao Yang*, 18 April 1973; *Te Yang* and *Shen Yang*, 1 October 1977 by sale; *Yun Yang*, December 1980; *Chen Yang* by sale 27 February 1981; *Shao Yang* by sale 3 March 1983. There has been some confusion over the English translation of some names. These are now correct.
Modernisation: All ships converted to area air defence ships under the Wu Chin III programme. This upgrade involved the installation of the H 930 Modular Combat System (MCS) with a Signaal DA08 air search radar (employing a lightweight DA05 antenna) and a Signaal STIR missile control radar directing 10 box-launched Standard SM-1 surface-to-air missiles (two twin in 'B' position, two triple facing either beam aft). The system can track 24 targets simultaneously and attack four with an 8 second response time. An OTO Melara 76 mm is fitted to 'A' position, one Bofors 40 mm/70 is mounted forward of the seaboat on the starboard side, one abaft the ASROC magazine on the port side and a Mk 15 Block 1 Phalanx CIWS is aft between two banks of Standard launchers. A Westinghouse W-160 is mounted on a lattice mast on the hangar to control the Bofors. The amidships ASROC launcher is retained, its Mk 114 fire-control system is integrated with the H 930 MCS via a digital-analogue interface. The SQS-23 sonar has also been upgraded to the H standard using a Raytheon solid-state transmitter. The Chang Feng III EW system was developed jointly by Taiwan's Chung-Shan Institute of Science and Technology (CSIST) with the assistance of Hughes. The Chang Feng III employs phased-array antennas which resemble those of the Hughes SLQ-17, it is capable of both deception and noise jamming. An eighth ship, *Lao Yang*, was to have been given the same conversion but missed the programme after a grounding incident in 1987 and has since been deleted. Ta Chen datalink fitted from 1994. Four Hsiung Feng II SSM launchers (quad) are fitted aft of the ASROC launcher.
Operational: Having paid off all the other ex-US Second World War destroyers, these ships are likely to be replaced by the 'Kidd' class from 2005. Form 131 Squadron.

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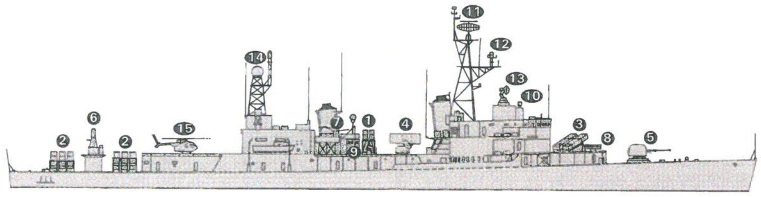
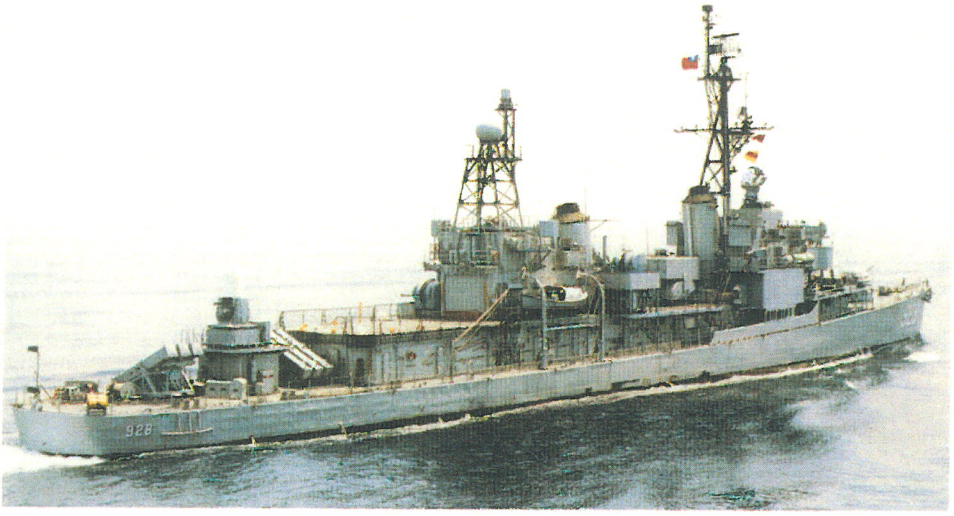


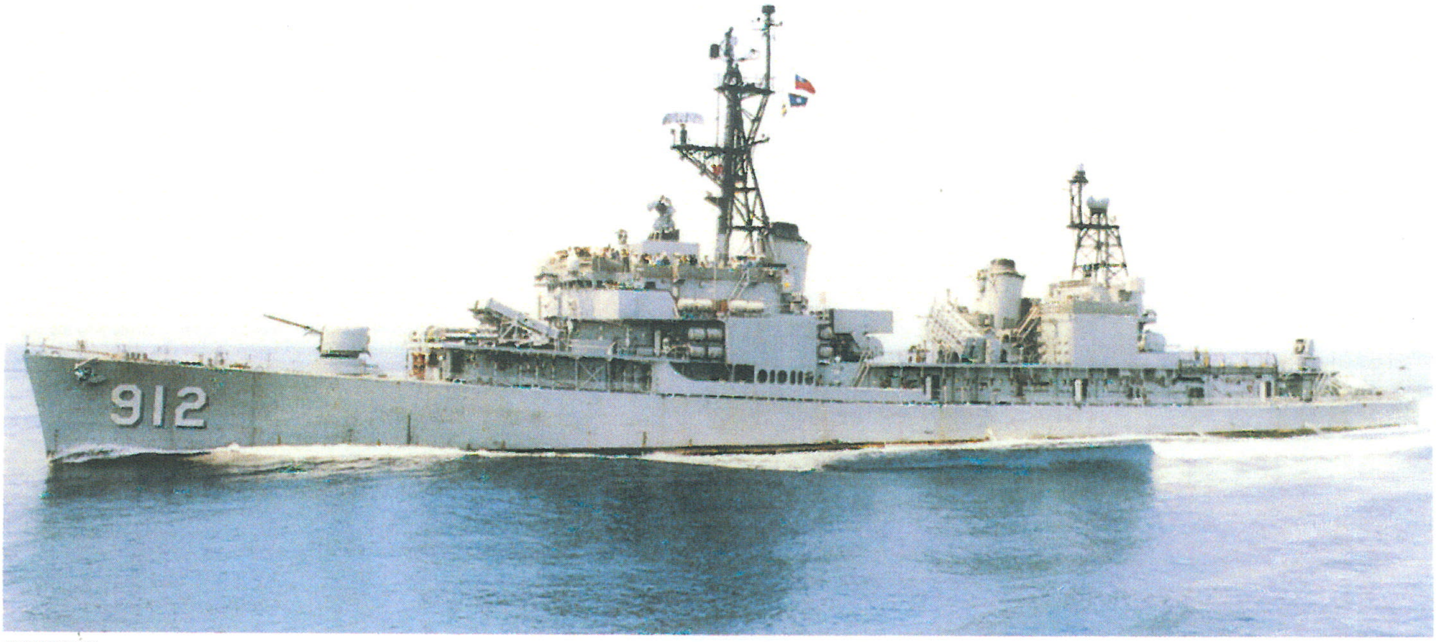
LIAO YANG

(Scale 1 : 1,200), Ian Sturton / 0126186



CHEN YANG

9/2001, Ships of the World / 0121407



CHIEN YANG

9/2001, Ships of the World / 0121404

0 + 4 KIDD CLASS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
CHI DE (ex-*Scott*)	1801 (ex-DD 995)	Ingalls Shipbuilding	12 Feb 1979	1 Mar 1980	24 Oct 1981
MING DE (ex-*Kidd*)	1802 (ex-DD 993)	Ingalls Shipbuilding	26 June 1978	11 Aug 1979	27 June 1981
TONG DE (ex-*Chandler*)	1803 (ex-DD 996)	Ingalls Shipbuilding	7 May 1979	24 May 1980	13 Mar 1982
WU DE (ex-*Callaghan*)	1805 (ex-DD 994)	Ingalls Shipbuilding	23 Oct 1978	1 Dec 1979	29 Aug 1981

Displacement, tons: 6,950 light; 9,574 full load
Dimensions, feet (metres): 563.3 × 55 × 20 *(171.7 × 16.8 × 6.2)*
Main machinery: 4 GE LM 2500 gas turbines; 86,000 hp *(64.16 MW)* sustained; 2 shafts
Speed, knots: 33. **Range, miles:** 6,000 at 20 kt
Complement: 363 (31 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: 52 GDC Standard SM-2MR Block II; command/inertial guidance; semi-active radar homing to 167 km *(90 n miles)* at 2 Mach. 2 twin Mk 26 launchers.
A/S: 16 Honeywell ASROC; inertial guidance to 1.6-10 km *(1-5.4 n miles)*; payload Mk 46 Mod 5 Neartip. Fired from SAM launchers.
Guns: 2 FMC 5 in *(127 mm)*/54 Mk 45 Mod 0; 20 rds/min to 23 km *(12.6 n miles)*; weight of shell 32 kg.
2 General Electric/General Dynamics 20 mm Vulcan Phalanx 6-barrelled Mk 15; 3,000 rds/min (4,500 in Block 1).
4—12.7 mm MGs.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes. Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg. Torpedoes fired from inside the hull under the hangar.
Countermeasures: Decoys: 4 Loral Hycor SRBOC 6-barrelled fixed Mk 36; IR flares and chaff to 4 km *(2.2 n miles)*. SLQ-25 Nixie; torpedo decoy.
Combat data systems: ACDS Block 1 Level 1 with datalinks.
Weapons control: SWG-1A Harpoon LCS. 2 Mk 74 MFCS. Mk 86 Mod 5 GFCS. Mk 116 FCS for ASW. Mk 14 WDS. SYS 2(V)2 IADT. 4 SYR 3393 for SAM mid-course guidance.
Radars: Air search: ITT SPS-48E; 3D; E/F-band.
Raytheon SPS-49(V)5; C/D-band.
Air/Surface search: ISC Cardion SPS-55; I/J-band.
Navigation: Raytheon SPS-64; I/J-band.
Fire control: 2 Raytheon SPG-51D, 1 Lockheed SPG-60, 1 Lockheed SPQ-9A.
Sonars: General Electric/Hughes SQS-53A; bow-mounted; search and attack; medium frequency.
Gould SQR-19 (TACTAS); passive towed array (may be fitted).

Helicopters: 2 medium size.

Programmes: Originally ordered by the Iranian government in 1974, the contracts were taken over by the US Navy on 25 July 1979. All paid off from USN service in 1998-99. Offered to the Taiwan government, intention to buy confirmed on 2 October 2001. Entry into service is expected to begin in 2005.
Modernisation: All received major modernisation from 1988-90. Further package to be completed prior to transfer. This may include replacement of the Mk 26 launchers by VLS.
Structure: Optimised for general warfare, mainmast and radar aerials are in different configuration than 'Spruance' class. Details given are for the ships in USN service.

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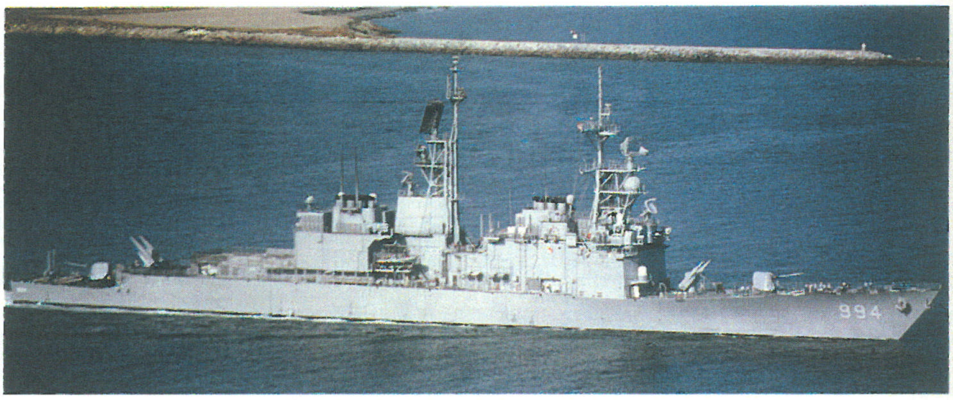


KIDD class (US colours) *4/1997, H M Steele* / 0016364

FRIGATES

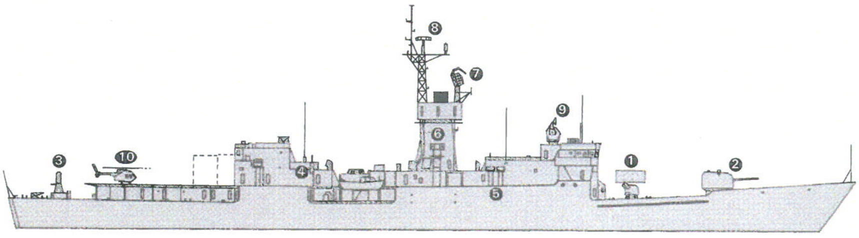
Notes: The Kuang Hua 7 programme has superseded the former Kuang Hua 5 programme for the procurement of a new class of frigates/corvettes to replace the 'Knox' class frigates. It is understood that there is a requirement for up to eight new ships of about 2,000 tons with a main armament of Hsiung Feng-II missiles. It is not clear whether the ships are to be procured abroad or built locally.

8 KNOX CLASS (FFGH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*Recommissioned*
CHIN YANG (ex-*Robert E Peary*)	932 (ex-FF 1073)	Lockheed Shipbuilding	20 Dec 1970	23 June 1971	23 Sep 1972	6 Oct 1993
FONG YANG (ex-*Brewton*)	933 (ex-FF 1086)	Avondale Shipyards	2 Oct 1970	24 July 1971	8 July 1972	6 Oct 1993
FENG YANG (ex-*Kirk*)	934 (ex-FF 1087)	Avondale Shipyards	4 Dec 1970	25 Sep 1971	9 Sep 1972	6 Oct 1993
LAN YANG (ex-*Joseph Hewes*)	935 (ex-FF 1078)	Avondale Shipyards	15 May 1969	7 Mar 1970	22 Apr 1971	4 Aug 1995
HAE YANG (ex-*Cook*)	936 (ex-FF 1083)	Avondale Shipyards	20 Mar 1970	23 Jan 1971	18 Dec 1971	4 Aug 1995
HWAI YANG (ex-*Barbey*)	937 (ex-FF 1088)	Avondale Shipyards	5 Feb 1971	4 Dec 1971	11 Nov 1972	4 Aug 1995
NING YANG (ex-*Aylwin*)	938 (ex-FF 1081)	Avondale Shipyards	13 Nov 1969	29 Aug 1970	18 Sep 1971	18 Oct 1999
YI YANG (ex-*Valdez*)	939 (ex-FF 1096)	Avondale Shipyards	30 June 1972	24 Mar 1973	27 July 1974	18 Oct 1999

Displacement, tons: 3,011 standard; 3,877 (932, 935), 4,260 (933, 934) full load
Dimensions, feet (metres): 439.6 × 46.8 × 15; 24.8 (sonar) *(134 × 14.3 × 4.6; 7.8)*
Main machinery: 2 Combustion Engineering/Babcock & Wilcox boilers; 1,200 psi *(84.4 kg/cm²)*; 950°F *(510°C)*; 1 turbine; 35,000 hp *(26 MW)*; 1 shaft
Speed, knots: 27. **Range, miles:** 4,000 at 22 kt on 1 boiler
Complement: 288 (17 officers) including aircrew

Missiles: SSM: 8 McDonnell Douglas Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
A/S: Honeywell ASROC Mk 16 octuple launcher with reload system (has 2 cells modified to fire Harpoon) ❶; inertial guidance from 1.6-10 km *(1-5.4 n miles)*; payload Mk 46 Mod 5 Neartip.
Guns: 1 FMC 5 in *(127 mm)*/54 Mk 42 Mod 9 ❷; 20-40 rds/min to 24 km *(13 n miles)* anti-surface; 14 km *(7.7 n miles)* anti-aircraft; weight of shell 32 kg.
1 General Electric/General Dynamics 20 mm/76 6-barrelled Mk 15 Vulcan Phalanx ❸; 3,000 rds/min combined to 1.5 km.
4 Type 75 20 mm.
Torpedoes: 4—324 mm Mk 32 (2 twin) fixed tubes ❹. 22 Honeywell/Alliant Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg. May be replaced by 2 triple tubes.



CHIN YANG *(Scale 1 : 1,200), Ian Sturton* / 0121406

Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled fixed Mk 36 ❺; IR flares and chaff to 4 km *(2.2 n miles)*. T Mk 6 Fanfare/SLQ-25 Nixie; torpedo decoy. Prairie Masker hull and blade rate noise suppression.
ESM/ECM: SLQ-32(V)2 ❻; radar warning. Sidekick modification adds jammer and deception system.
Combat data systems: Link 14 receive only. Link W may be fitted. FFISTS (Frigate Integrated Shipboard Tactical System). RADDS (Radar Displays and Distribution System).
Weapons control: SWG-1A Harpoon LCS. Mk 68 GFCS. Mk 114 ASW FCS. Mk 1 target designation system. SRQ-4 for LAMPS I.
Radars: Air search: Lockheed SPS-40B ❼; B-band.
Surface search: Raytheon SPS-10 or Norden SPS-67 ❽; G-band.
Navigation: Marconi LN66; I-band.
Fire control: Western Electric SPG-53A/D/F ❾; I/J-band.
Tacan: SRN 15. IFF: UPX-12.
Sonars: EDO/General Electric SQS-26CX; bow-mounted; active search and attack; medium frequency.
EDO SQR-18A(V)1; passive towed array.

Helicopters: 1 MD 500 ❿.

Programmes: *Fong Yang* leased from the US on 23 July 1992, *Chin Yang* 7 August 1992 and *Feng Yang* 6 August 1993. *Hae Yang* leased 31 May 1994; *Hwai Yang* 21 June 1994 and *Lan Yang* 30 June 1994. The second batch of three were overhauled and upgraded by Long Beach Shipyard, California. *Ning Yang* and *Yi Yang* transferred by sale on 29 April 1998, and refitted at Denton Shipyard, South Carolina. The transfer of a third (ex-*Pharris* 1094) was declined as were further offers of ex-*Whipple* (1062) and ex-*Downes* (1070) for use as spares.
Structure: ASROC-torpedo reloading capability (note slanting face of bridge structure immediately behind ASROC). Four Mk 32 torpedo tubes are fixed in the midships structure, two to a side, angled out at 45°. The arrangement provides improved loading capability over exposed triple Mk 32 torpedo tubes. A 4,000 lb lightweight anchor is fitted on the port side and an 8,000 lb anchor fits into the after section of the sonar.
Operational: Seasprite helicopters were planned to be embarked but this now seems unlikely. All of the class are assigned to 168 Patrol Squadron at Suao. *Lan Yang* is the Flagship.

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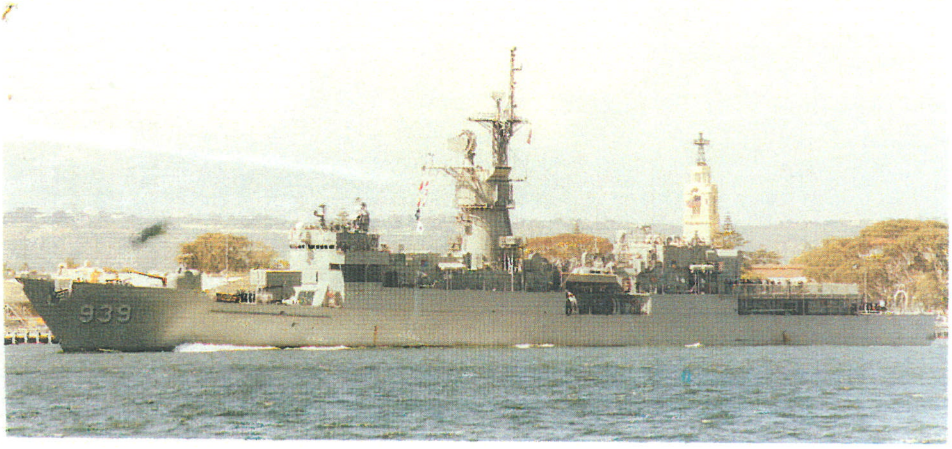


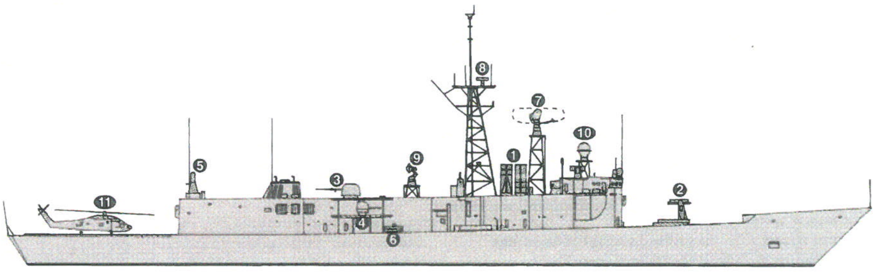
YI YANG
9/1999, van Ginderen Collection / 0080777

8 CHENG KUNG CLASS (KWANG HUA 1 PROJECT) (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
CHENG KUNG	1101	China SB Corporation, Kaohsiung	7 Jan 1990	5 Oct 1991	7 May 1993
CHENG HO	1103	China SB Corporation, Kaohsiung	21 Dec 1990	15 Oct 1992	28 Mar 1994
CHI KUANG	1105	China SB Corporation, Kaohsiung	4 Oct 1991	27 Sep 1993	4 Mar 1995
YUEH FEI	1106	China SB Corporation, Kaohsiung	5 Sep 1992	26 Aug 1994	7 Feb 1996
TZU-I	1107	China SB Corporation, Kaohsiung	7 Aug 1994	13 July 1995	9 Jan 1997
PAN CHAO	1108	China SB Corporation, Kaohsiung	25 July 1995	4 July 1996	16 Dec 1997
CHANG CHIEN	1109	China SB Corporation, Kaohsiung	4 Dec 1995	14 May 1997	1 Dec 1998
TIEN TAN	1110	China SB Corporation, Kaohsiung	21 Feb 2001	15 Oct 2002	11 Mar 2004

Displacement, tons: 2,750 light; 4,105 full load
Dimensions, feet (metres): 453 × 45 × 14.8; 24.5 (sonar) *(138.1 × 13.7 × 4.5; 7.5)*
Main machinery: 2 GE LM 2500 gas turbines; 41,000 hp *(30.59 MW)* sustained; 1 shaft; cp prop
2 auxiliary retractable props; 650 hp *(484 kW)*
Speed, knots: 29. **Range, miles:** 4,500 at 20 kt
Complement: 234 (15 officers) including 19 aircrew

Missiles: SSM: 8 Hsiung Feng II ❶ (2 quad); inertial guidance; active radar/IR homing to 80 km *(43.2 n miles)* at 0.85 Mach; warhead 190 kg or Harpoon Block II in due course.
SAM: 40 GDC Standard SM1-MR; Mk 13 launcher ❷; command guidance; semi-active radar homing to 46 km *(25 n miles)* at 2 Mach.
Guns: 1 OTO Melara 76 mm/62 Mk 75 ❸; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Bofors 40 mm/70 ❹. 3—20 mm Type 75 (on hangar roof when fitted).
1 GE/GD 20 mm/76 Vulcan Phalanx 6-barrelled Mk 15 ❺; 3,000 rds/min combined to 1.5 km.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❻. Honeywell/Alliant Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.



CHENG KUNG *(Scale 1 : 1,200), Ian Sturton* / 0019226

Countermeasures: Decoys: 4 Kung Fen 6 chaff launchers or locally produced version of RBOC (114 mm). SLQ-25A Nixie; torpedo decoy.
ESM/ECM: Chang Feng IV (locally produced version of SLQ-32(V)2 with Sidekick); combined radar warning and jammers.

Combat data systems: Norden SYS-2(V)2 action data automation with UYK 43 computer. Ta Chen link (from *Chi Kuang* onwards and being backfitted).
Weapons control: Loral Mk 92 Mod 6. Mk 13 Mod 4 weapon direction system. Mk 114 ASW. 2 Mk 24 optical directors. Mk 309 TFCS.
Radars: Air search: Raytheon SPS-49(V)5 or SPS-49A (1108-9) ❼; C/D-band.
Surface search: ISC Cardion SPS-55 ❽ or Raytheon Chang Bai; I/J-band.
Fire control: USN UD 417 STIR ❾; I/J-band.
Unisys Mk 92 Mod 6 ❿; I/J-band.
Sonars: Raytheon SQS-56/DE 1160P; hull-mounted; active search and attack; medium frequency.
SQR-18A(V)2; passive towed array or BAe/Thomson Sintra ATAS active towed array (from *Chi Kuang* onwards).

Helicopters: 2 Sikorsky S-70C(M) ⓫ (only 1 embarked).

Programmes: First two ordered 8 May 1989. Named after Chinese generals and warriors. An eighth of class was ordered in late July 1999. Originally this ship was planned to be the first of a Flight II design, which was scrapped.
Modernisation: It is reported that Harpoon is to replace Hsiung Feng in due course. A PDMS may be fitted vice the 40 mm guns. RAM is a possibility.
Structure: Similar to the USS *Ingraham*. RAST helicopter hauldown. The area between the masts had to be strengthened to take the Hsiung Feng II missiles. Prairie Masker hull acoustic suppression system fitted.
Operational: Form the 146th Squadron.

UPDATED

CHENG HO
10/2001, Chris Sattler / 0534104

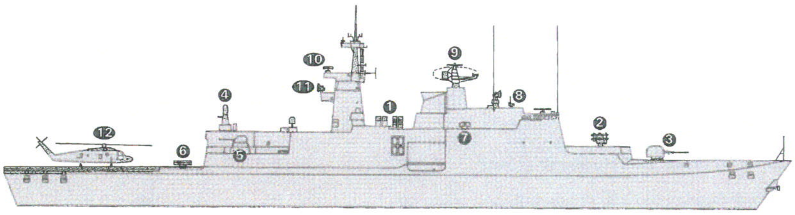
PAN CHAO *4/2002, Chris Sattler* / 0534106

6 KANG DING (LA FAYETTE) CLASS (KWANG HUA 2 PROJECT) (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
KANG DING	1202	Lorient Dockyard/Kaohsiung Shipyard	26 Aug 1993	12 Mar 1994	24 May 1996
SI NING	1203	Lorient Dockyard/Kaohsiung Shipyard	27 Apr 1994	5 Nov 1994	15 Sep 1996
KUN MING	1205	Lorient Dockyard/Kaohsiung Shipyard	7 Nov 1994	13 May 1995	26 Feb 1997
DI HUA	1206	Lorient Dockyard/Kaohsiung Shipyard	1 July 1995	27 Nov 1995	14 Aug 1997
WU CHANG	1207	Lorient Dockyard/Kaohsiung Shipyard	1 July 1995	27 Nov 1995	16 Dec 1997
CHEN TE	1208	Lorient Dockyard/Kaohsiung Shipyard	27 Dec 1995	2 Aug 1996	16 Jan 1998

Displacement, tons: 3,800 full load
Dimensions, feet (metres): 407.5 × 50.5 × 18 (screws) *(124.2 × 15.4 × 5.5)*
Main machinery: CODAD; 4 SEMT-Pielstick 12 PA6 V 280 STC diesels; 23,228 hp(m) *(17.08 MW)*; 2 shafts; LIPS cp props
Speed, knots: 25. **Range, miles:** 7,000 at 15 kt
Complement: 134 (15 officers) plus 25 spare

Missiles: SSM: 8 Hsiung Feng II (2 quad) ❶; inertial guidance; active radar/IR homing to 80 km *(43.2 n miles)* at 0.85 Mach; warhead 190 kg.
SAM: 1 Sea Chaparral quad launcher ❷; IR homing to 3 km *(1.6 n miles)* supersonic; warhead 5 kg.
Guns: 1 OTO Melara 76 mm/62 Mk 75 ❸; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
1 Hughes 20 mm/76 Vulcan Phalanx Mk 15 Mod 2 ❹.
2 Bofors 40 mm/70 ❺. 2 CS 20 mm Type 75.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❻; Alliant Mk 46 Mod 5; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 CSEE Dagaie chaff launchers ❼.
ESM/ECM: Thomson-CSF DR 3000S; intercept and jammer.
Chang Feng IV (1206); intercept and jammer.
Combat data systems: Thomson-CSF TACTICOS. Link W (Ta Chen).
Weapons control: CSEE Najir Mk 2 optronic director ❽.
Radars: Air/surface search: Thomson-CSF DRBV-26D Jupiter II (with LW08 aerial) ❾; D-band.



KANG DING *(Scale 1 : 1,200), Ian Sturton /* 0121405

Surface search: Thomson-CSF Triton G ❿; G-band.
Fire control: 2 Thomson-CSF Castor IIC ⓫; I/J-band.
Navigation and helo control: 2 Racal Decca 20V90; I-band.
Sonars: BAe/Thomson Sintra ATAS (V)2; active towed array.
Thomson Sintra Spherion B; bow-mounted; active search; medium frequency.

Helicopters: 1 Sikorsky S-70C(M)1 ⓬ Thunderhawk.

Programmes: Sale of up to 16 of the class authorised by the French government in August 1991. Contract for six signed with Thomson-CSF in early 1992, manufactured in France with some weapon assembly by China SB Corporation at Kaohsiung in Taiwan. First one to Taiwan in March 1996 and the last in January 1998. Names are those of Chinese cities. Second batch of 10 to be built by China SB Corporation was planned but this now seems unlikely.
Modernisation: There are plans to move Phalanx to the bridge roof and fit two 10-round RAM launchers on the hangar.
Structure: There are considerable differences with the French 'La Fayette' design in both superstructure and weapon systems. A comprehensive ASW fit has been added as well as additional gun armament. There is also no stern hatch for launching RIBs. Some of the weapons were fitted after arrival in Taiwan. DCN Samahé helicopter landing gear installed.
Operational: Form 124 Squadron.

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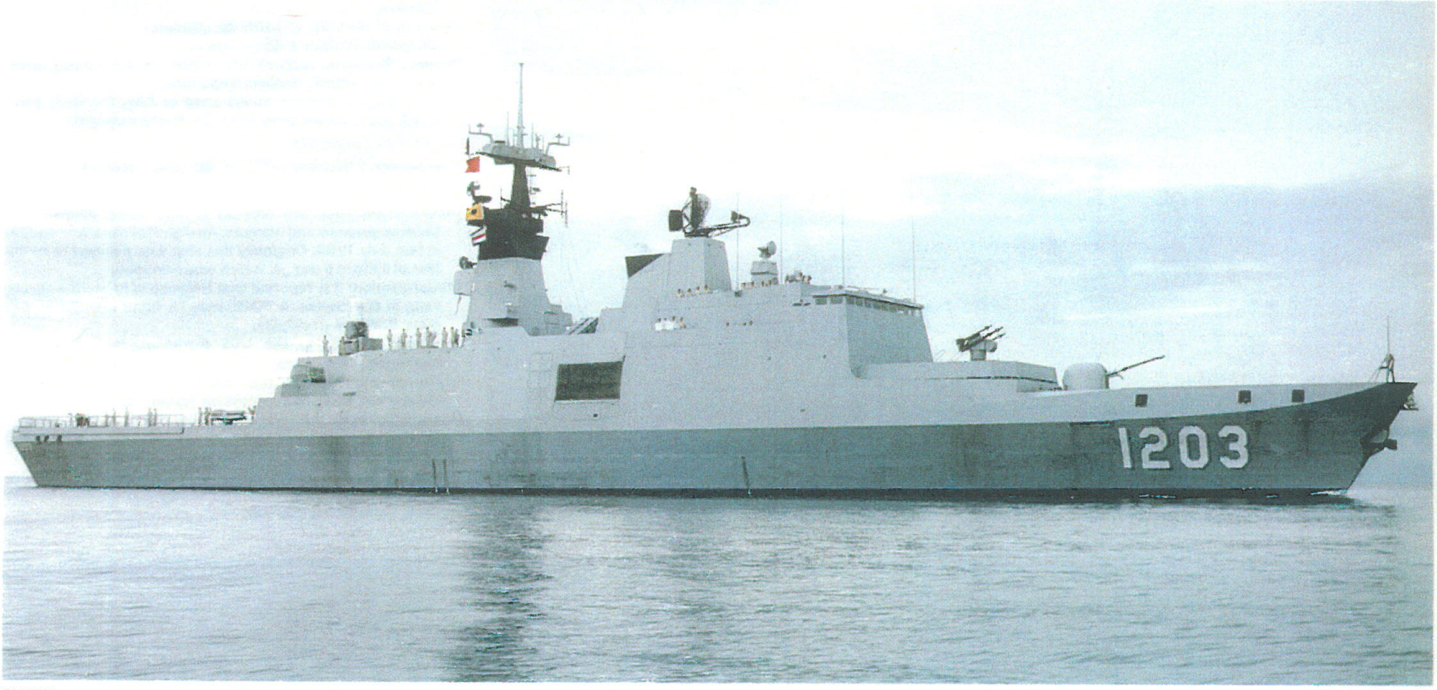

SI NING *6/2000, Sattler/Steele /* 0106598

WU CHANG *3/2002, Chris Sattler /* 0534102

SHIPBORNE AIRCRAFT

Notes: Negotiations to acquire SH-2F Seasprite helicopters for the 'Knox' class, conducted for several years, have not been satisfactorily concluded.

Numbers/Type: 21 Sikorsky S-70C(M)1 Thunderhawks.
Operational speed: 145 kt *(269 km/h)*.
Service ceiling: 19,000 ft *(5,790 m)*.
Range: 324 n miles *(600 km)*.
Role/Weapon systems: First delivered in 1991. This is a variant of the SH-60B and became seaborne with the first 'Cheng Kung' and 'Kang Ding' class frigates. 701 and 702 Squadrons. Two modified for EW and Sigint role. Another 14 S-70B/C SAR and assault aircraft belong to the Air Force. Sensors: APS 128 search radar; Litton ALR 606(V)2 ESM; ARR 84 sonobuoy receiver with Litton ASN 150 datalink; Allied AQS 18(V)3 dipping sonar; ASQ 504 MAD. Ta Chen datalink to be fitted. Weapons: ASW; two Hughes Mk 46 Mod 5 torpedoes or two Mk 64 depth bombs. ASV; could carry ASM.
UPDATED

THUNDERHAWK *1/2000, C Chung* / 0106599

Numbers/Type: 9 Hughes MD 500/ASW.
Operational speed: 110 kt *(204 km/h)*.
Service ceiling: 16,000 ft *(4,880 m)*.
Range: 203 n miles *(376 km)*.
Role/Weapon systems: Short-range ASW helicopter with limited surface search capability. 501 ASW Squadron. Sensors: Search radar, Texas Instruments ASQ 81(V)2 MAD. Weapons: ASW; one Mk 46 Mod 5 torpedo or two depth bombs. ASV; could carry machine gun pods.
VERIFIED

MD 500 *1/1995, L J Lamb* / 0080778

LAND-BASED MARITIME AIRCRAFT

Notes: Four Grumman E-2T Hawkeye AEW aircraft were acquired by the Air Force in February 1995.

Numbers/Type: 3/21 Grumman S-2E/S-2T (Turbo) Trackers.
Operational speed: 130 kt *(241 km/h)*.
Service ceiling: 25,000 ft *(7,620 m)*.
Range: 1,350 n miles *(2,500 km)*.
Role/Weapon systems: Patrol and ASW tasks transferred to the Navy in July 1998; 21 aircraft updated with turboprop engines and new sensors. Based at Pintung. To be replaced by P-3C when they enter service. Sensors: APS 504 search radar, ESM, MAD, AAS 40 FLIR, SSQ-41B, SSQ-47B sonobuoys; AQS 902F sonobuoy processor; ASN 150 datalink. Weapons: ASW; four Mk 44 torpedoes, Mk 54 depth charges or Mk 64 depth bombs or mines. ASV; Hsiung Feng II ASM; six 127 mm rockets.
UPDATED

TRACKER *6/2002*, Adolfo Ortigueira Gil* / 0569245

Numbers/Type: 12 Lockheed Martin P-3C Orion.
Operational speed: 411 kt *(761 km/h)*.
Service ceiling: 28,300 ft *(8,625 m)*.
Range: 4,000 n miles *(7,410 km)*.
Role/Weapon systems: Authorised by US government in 2001 for sale to Taiwan. Delivery date uncertain. Equipment based on aircraft in US service. Sensors: APS-115 search radar, ASQ-81 MAD, UYS-1 acoustic suite, up to 100 sonobuoys, AAR-36 FLIR, cameras, ALR-66 ESM. AAR 47 ESM and ALE 47 chaff/IR dispenser in Update II. Weapons: ASW; four Mk 46/50 torpedoes or depth bombs. ASUW; four AGM-84C Harpoon, AGM-65F Maverick, AGM-84E SLAM, six Mk 55/56 mines.
VERIFIED

ORION *4/2000, Hachiro Nakai* / 0106787

Numbers/Type: 12 Sikorsky MH-53E Sea Dragon.
Operational speed: 170 kt *(315 km/h)*.
Service ceiling: 18,500 ft *(5,640 m)*.
Range: 1,000 n miles *(1,850 km)*.
Role/Weapon systems: Authorised in 2001 by US government for sale to Taiwan. Delivery date uncertain. Three-engined AMCM helicopter (HM) similar to Super Stallion; tows ALQ-166 MCM sweep equipment; self-deployed if necessary. Sensors: Northrop Grumman AQS-14A dipping sonar. Weapons: Two 12.7 mm guns for self-defence.
VERIFIED

SEA DRAGON *5/1999, US Navy* / 0106785

PATROL FORCES

Notes: All coastal patrol craft were transferred to the Maritime Police on 8 December 1992. The Maritime Police became the Coast Guard 1 January 2000.

12 + (12) JIN CHIANG CLASS (LARGE PATROL CRAFT) (PCG)

Name	*No*	*Builders*	*Launched*	*Commissioned*
JIN CHIANG	603	Lien-Ho, Kaohsiung	1 May 1994	1 Dec 1994
TAN CHIANG	605	China SB, Kaohsiung	18 June 1998	7 Sep 1999
HSIN CHIANG	606	China SB, Kaohsiung	14 Aug 1998	7 Sep 1999
FENG CHIANG	607	China SB, Kaohsiung	22 Oct 1998	29 Oct 1999
TSENG CHIANG	608	China SB, Kaohsiung	16 Nov 1998	29 Oct 1999
KAO CHIANG	609	China SB, Kaohsiung	15 Dec 1998	29 Oct 1999
JING CHIANG	610	China SB, Kaohsiung	13 May 1999	15 Feb 2000
HSIAN CHIANG	611	China SB, Kaohsiung	16 July 1999	15 Feb 2000
TSI CHIANG	612	China SB, Kaohsiung	22 Dec 1999	15 Feb 2000
PO CHIANG	614	China SB, Kaohsiung	22 Dec 1999	21 July 2000
CHAN CHIANG	615	China SB, Kaohsiung	21 Jan 2000	21 July 2000
CHU CHIANG	617	China SB, Kaohsiung	25 Feb 2000	21 July 2000

Displacement, tons: 680 full load
Dimensions, feet (metres): 201.4 × 31.2 × 9.5 *(61.4 × 9.5 × 2.9)*
Main machinery: 2 MTU 20V 1163 TB93 diesels; 20,128 hp(m) *(14.79 MW)*; 2 shafts
Speed, knots: 25. **Range, miles:** 4,150 at 15 kt
Complement: 50 (7 officers)

Missiles: SSM: 4 Hsiung Feng I; radar or optical guidance to 36 km *(19.4 n miles)* at 0.7 Mach; warhead 75 kg.
Guns: 1 Bofors 40 mm/70. 1 CS 20 mm Type 75. 2—12.7 mm MGs.
Depth charges: 2 racks.
Mines: 2 rails for Mk 6.
Weapons control: Honeywell H 930 Mod 2 MFCS. Contraves WCS. Rafael Sea Eye FLIR; range out to 3 km.
Radars: Air/surface search: Marconi LN66; I-band.
Fire control: Hughes HR-76C5; I/J-band.
Navigation: Racal Decca Bridgemaster; I-band.
Sonars: Simrad; search and attack; high frequency.

Programmes: Kwang Hua Project 3 design by United Ship Design Centre. First one laid down 25 June 1993. Eleven more ordered 26 June 1997. A further 12 are expected by 2010.
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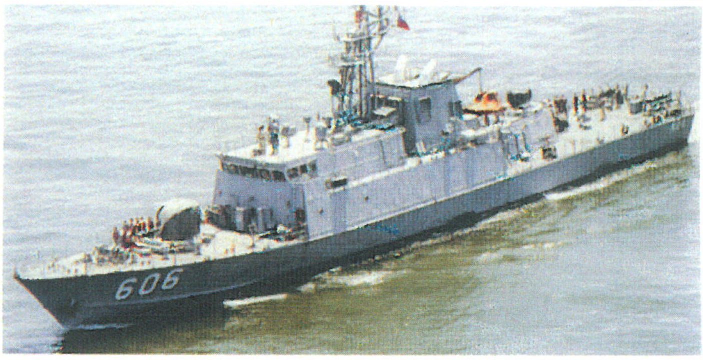

HSIN CHIANG *6/2002*, Ships of the World* / 0569244

2 LUNG CHIANG CLASS (FAST ATTACK CRAFT—MISSILE) (PGGF)

Name	*No*	*Builders*	*Commissioned*
LUNG CHIANG	601 (ex-PGG 581)	Tacoma Boatbuilding, WA	15 May 1978
SUI CHIANG	602 (ex-PGG 582)	China SB Corporation, Kaohsiung	31 Dec 1981

Displacement, tons: 270 full load
Dimensions, feet (metres): 164.5 × 23.1 × 9.5 *(50.2 × 7.3 × 2.9)*
Main machinery: CODAG; 3 Avco Lycoming TF-40A gas turbines; 12,000 hp *(8.95 MW)* sustained; 3 Detroit 12V-149TI diesels; 2,736 hp *(2.04 MW)* sustained; 3 shafts; cp props
Speed, knots: 20 kt diesels; 38 kt gas. **Range, miles:** 3,100 at 12 kt on 1 diesel; 800 at 36 kt
Complement: 38 (5 officers)

Missiles: SSM: 4 Hsiung Feng I; radar or optical guidance to 36 km *(19.4 n miles)* at 0.7 Mach; warhead 75 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62; 60 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg. 1 Bofors 40 mm/70. 2—12.7 mm MGs.
Countermeasures: Decoys: 4 Israeli AV2 (601) or SMOC-4 (602) chaff launchers.
ESM: WD-2A; intercept.
Combat data systems: IPN 10 action data automation.
Weapons control: NA 10 Mod 0 GFCS. Honeywell H 930 Mod 2 MFCS (602).
Radars: Surface/air search: Selenia RAN 11 L/X; D/I-band.
Fire control: RCA HR 76; I/J-band (for SSM) (602).
Selenia RAN IIL/X; I/J-band for SSM (601).
Navigation: SPS-58(A); I-band.

Programmes: Similar to the US Patrol Ship Multi-Mission Mk 5 (PSMM Mk 5). Second of class was built to an improved design. A much larger number of this class was intended, all to be armed with Harpoon. However at that time the US ban on export of Harpoon to Taiwan coupled with the high cost and doubts about seaworthiness caused the cancellation of this programme.
Structure: Fin stabilisers were fitted to help correct the poor sea-keeping qualities of the design. Both have had engine room fires caused by overheating in GT gearboxes.
Operational: *Lung Chiang* may be non-operational and could be sold.

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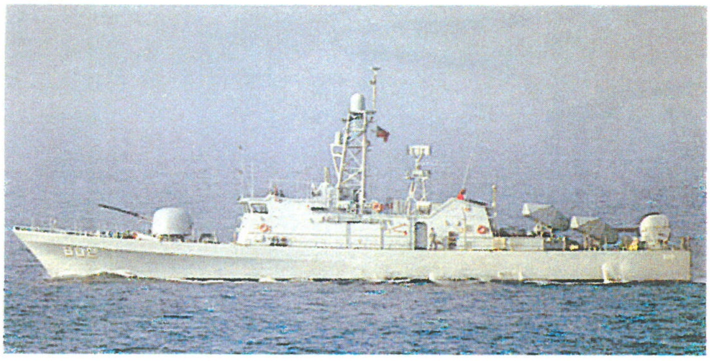

SUI CHIANG *4/1997, Ships of the World* / 0019231

47 HAI OU CLASS (FAST ATTACK CRAFT—MISSILE) (PTG)

FABG 7-12 **FABG 14-21** **FABG 23-30** **FABG 32-39** **FABG 41-45**
FABG 47-57 **FABG 59**

Displacement, tons: 47 full load
Dimensions, feet (metres): 70.8 × 18 × 3.3 *(21.6 × 5.5 × 1)*
Main machinery: 2 MTU 12V 331 TC82 diesels; 2,605 hp(m) *(1.92 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 700 at 32 kt
Complement: 10 (2 officers)

Missiles: SSM: 2 Hsiung Feng I; radar or optical guidance to 36 km *(19.4 n miles)* at 0.7 Mach; warhead 75 kg.
Guns: 1 CS 20 mm Type 75. 2—12.7 mm MGs.
Countermeasures: Decoys: 4 Israeli AV2 chaff launchers.
ESM: WD-2A; intercept.
Weapons control: Kollmorgen Mk 35 optical director.
Radars: Surface search: Marconi LN66; I-band.
Fire control: RCA R76 C5; I-band.

Programmes: This design was developed by Sun Yat Sen Scientific Research Institute from the basic Israeli Dvora plans. Built by China SB Corporation (Tsoying SY), Kaohsiung except for the first pair (FABG 5-6) which were the original 'Dvora' class hulls and were commissioned on 31 December 1977.
Structure: Aluminium alloy hulls. The first series had a solid mast and the missiles were nearer the stern. Second series changed to a lattice mast and moved the missiles further forward allowing room for two 12.7 mm MGs right aft. One 20 mm has been added on the stern.
Operational: The prototype reached 45 kt on trials but top speeds are now reported as being much reduced. These craft often carry shoulder-launched SAMs. One task is to provide exercise high-speed targets in shallow waters. From 1997 organised in five divisions based at Makung, Tamsui, Tsoying, Suao and Keelung. Not all are operational and the class is likely to be paid off in the short term.
Sales: Two similar craft to Paraguay in 1996.

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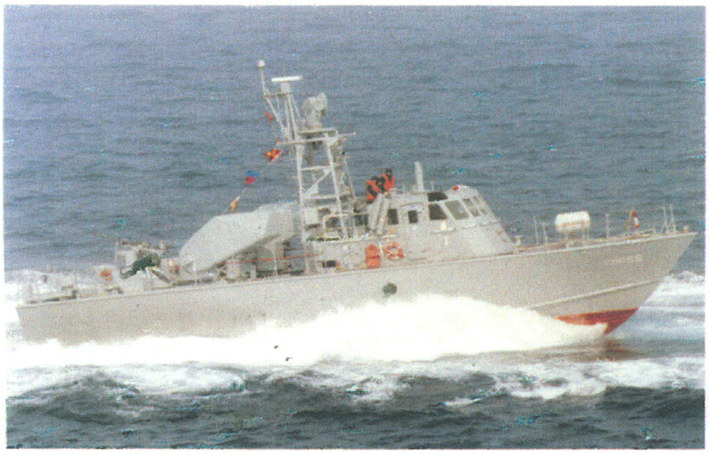

FABG 56 *6/2000, DTM* / 0126194

0 + 1 (28) KWANG HUA 6 CLASS (PTG)

Displacement, tons: 180 standard
Dimensions, feet (metres): 131.2 × 23 × 6.2 *(40 × 7 × 1.9)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 30. **Range, miles:** 1,150 at 22 kt
Complement: 14
Missiles: SSM: 4 Hsiung Feng II.
Guns: 1 CS 20 mm Type 75.
Countermeasures: Decoys: Chaff launchers. ESM.
Weapons control: Optronic director.
Radars: Surface search. Fire control.

Comment: Funds allocated for the budget period July 1998 to June 2003 to build these craft in Taiwan to replace the 'Hai Ou' class. First of class laid down in early 2001 and launched on 26 September 2002. Likely to be commissioned in 2004.

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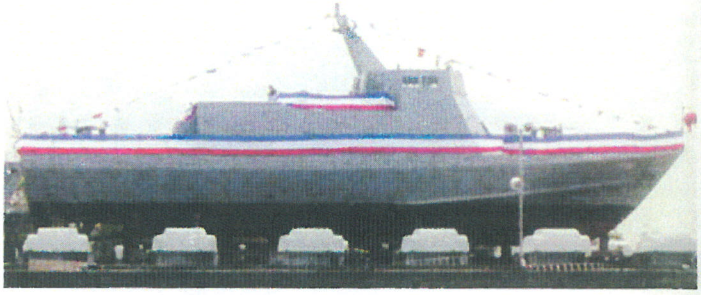

KWANG HUA 6 *9/2002, DTM* / 0529547

8 NING HAI CLASS (LARGE PATROL CRAFT) (PCF)

NING HAI PCL 1 **AN HAI** PCL 2 **PCL 3** **PCL 5-9**

Displacement, tons: 143 full load
Dimensions, feet (metres): 105 × 29.5 × 5.9 *(32 × 9 × 1.8)*
Main machinery: 3 MTU 12V 396 TB93 diesels; 4,890 hp(m) *(3.6 MW)* sustained; 3 shafts
Speed, knots: 40
Complement: 18 (2 officers)
Guns: 1 Bofors 40 mm/60. 1 CS 20 mm Type 75.
Depth charges: 2 racks.
Radars: Surface search: Decca; I-band.
Sonars: Hull-mounted; active search and attack; high frequency.

Comment: Built to Vosper QAF design by China SB Corporation, Kaohsiung in 1987-90. Previously reported numbers had been exaggerated. They are used mainly for harbour defence against midget submarines and frogmen and also for Fishery protection tasks.

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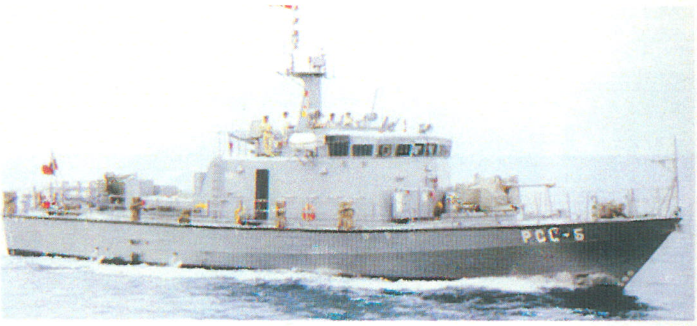

PCL 5 *6/2002*, Ships of the World* / 0569243

AMPHIBIOUS FORCES

1 CABILDO CLASS (LSDM)

Name	*No*	*Builders*	*Commissioned*
CHUNG CHENG (ex-*Comstock*)	191 (ex-LSD 19)	Newport News, Virginia	2 July 1945

Displacement, tons: 4,790 standard; 9,375 full load
Dimensions, feet (metres): 475 × 76.2 × 18 *(144.8 × 23.2 × 5.5)*
Main machinery: 2 boilers; 435 psi *(30.6 kg/cm^2)*; 740°F *(393°C)*; 2 turbines; 7,000 hp *(5.22 MW)*; 2 shafts
Speed, knots: 15.4. **Range, miles:** 8,000 at 15 kt
Complement: 316
Military lift: 3 LCUs or 18 LCMs or 32 LVTs in docking well
Missiles: SAM: 1 Sea Chaparral quadruple launcher.
Guns: 12 Bofors 40 mm/56 (2 quad, 2 twin).
Weapons control: US Mk 26 Mod 4.
Radars: Surface search: Raytheon SPS-5; G/H-band.
Navigation: Marconi LN66; I-band.

Comment: Launched 28 April 1945 and transferred to Taiwan on 1 October 1985 having been bought from a ship breaker. SAM system fitted in 1992. Collision with merchant ship on 28 June 2001 resulted in five months repair work. Second of class scrapped in mid-1999.

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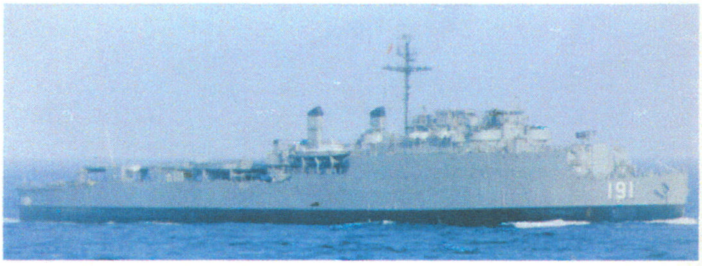

CHUNG CHENG *3/2001, C Chung* / 0126197

1 + 1 ANCHORAGE CLASS (LSDH)

Name	*No*	*Builders*	*Commissioned*
SHIU HAI (ex-*Pensacola*)	LSD 193 (ex-LSD 38)	General Dynamics, Quincy	27 Mar 1971

Displacement, tons: 8,600 light; 13,700 full load

Dimensions, feet (metres): 553.3 × 84 × 20 *(168.6 × 25.6 × 6)*

Main machinery: 2 Foster-Wheeler boilers; 600 psi *(42.3 kg/cm²)*; 870°F *(467°C)*; 2 De Laval turbines; 24,000 hp *(18 MW)*; 2 shafts

Speed, knots: 22. **Range, miles:** 14,800 at 12 kt

Complement: 374 (24 officers)

Military lift: 366 troops (18 officers); 2 LCU or 18 LCM 6 or 9 LCM 8 or 50 LVT; 1 LCM 6 on deck; 2 LCPL and 1 LCVP on davits. Aviation fuel, 90 tons

Guns: 2 General Electric/General Dynamics 20 mm/76 6-barrelled Vulcan Phalanx Mk 15; 3,000 rds/min combined to 1.5 km.
2—25 mm Mk 38. 6—12.7 mm MGs.

Countermeasures: Decoys: 4 Loral Hycor SRBOC 6-barrelled Mk 36; IR flares and chaff to 4 km *(2.2 n miles)*.
ESM: SLQ-32(V)1; intercept.

Radars: Air search: Lockheed SPS-40B; B-band.
Surface search: Raytheon SPS-10F; G-band.
Navigation: Marconi LN66; I-band.

Helicopters: Platform only.

Comment: First one acquired from US Navy 30 September 1999 and arrived in Taiwan on 2 June 2000. Transfer of ex-*Anchorage* (LSD 36) is likely to take place in 2004. Has a docking well 131.1 × 15.2 m and two 50 ton cranes. Based at Tsoying.

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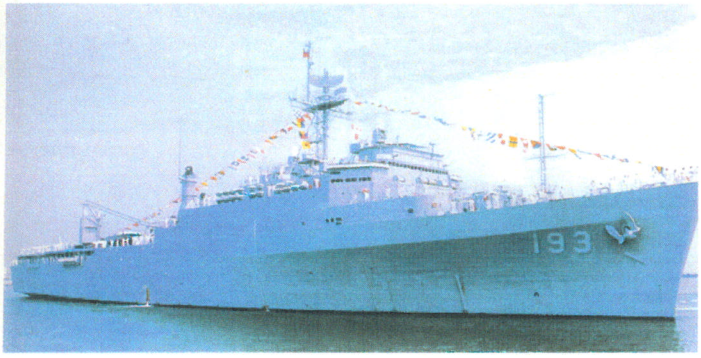

SHIU HAI *6/2000, DTM* / 0126195

2 NEWPORT CLASS (LSTH)

Name	*No*	*Builders*	*Commissioned*
CHUNG HO (ex-*Manitowic*)	232 (ex-LST 1180)	Philadelphia Shipyard	24 Jan 1970
CHUNG PING (ex-*Sumter*)	233 (ex-LST 1181)	Philadelphia Shipyard	20 June 1970

Displacement, tons: 4,975 light; 8,450 full load

Dimensions, feet (metres): 522.3 × 69.5 × 17.5 *(159.2 × 21.2 × 5.3)*

Main machinery: 6 ALCO 16-251 diesels; 16,500 hp *(12.3 MW)* sustained; 2 shafts; cp props; bow thruster

Speed, knots: 20. **Range, miles:** 14,250 at 14 kt

Complement: 257 (13 officers)

Military lift: 400 troops; 500 tons vehicles; 3 LCVPs and 1 LCPL on davits

Guns: 1 General Electric/General Dynamics 20 mm Vulcan Phalanx Mk 15.
4—40 mm/60 (2 twin).

Countermeasures: ESM: WD-2A (233); intercept.
ESM/ECM: Chang Feng III (232); intercept and jammer.

Radars: Surface search: Raytheon SPS-67; G-band.
Navigation: Marconi LN66; I-band.

Helicopters: Platform only.

Comment: First pair transferred from USA by lease confirmed for both ships on 1 July 1995. Refitted at Newport News and recommissioned 8 May 1997, sailing for Taiwan after a short operational work-up. Purchased outright on 29 September 2000. Transfer of further ships is unlikely. These ships unload by a 112 ft ramp over their bow. The ramp is supported by twin derrick arms. A ramp just forward of the superstructure connects the lower tank deck with the main deck and a vehicle passage through the superstructure provides access to the parking area amidships. A stern gate to the tank deck permits unloading of amphibious tractors into the water, or unloading of other vehicles into an LCU or on to a pier. Vehicle stowage covers 19,000 sq ft. Length over derrick arms is 562 ft *(171.3 m)*; full load draught is 11.5 ft forward and 17.5 ft aft. Bow thruster fitted to hold position offshore while unloading amphibious tractors.

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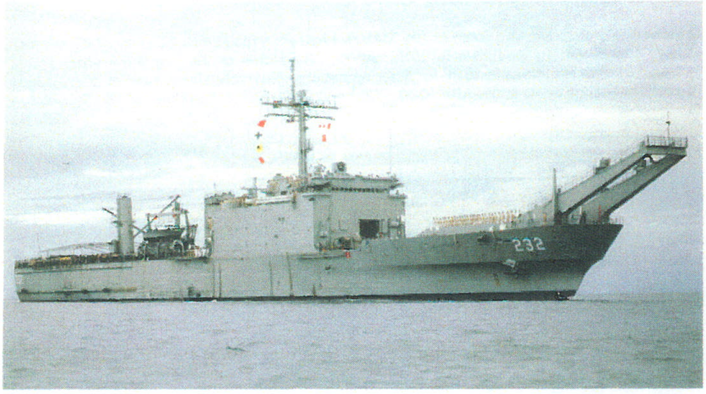

CHUNG HO *6/2000, Sattler/Steele* / 0106602

4 LSM 1 CLASS (LSM)

MEI CHIN (ex-*LSM 155*) 341 (ex-649)
MEI PING (ex-*LSM 471*) 353 (ex-659)
MEI SUNG (ex-*LSM 457*) 347 (ex-694)
MEI LO (ex-*LSM 362*) 356 (ex-637)

Displacement, tons: 1,095 full load

Dimensions, feet (metres): 203.5 × 34.2 × 8.3 *(62.1 × 10.4 × 2.5)*

Main machinery: 2 Fairbanks Morse 38D8-1/8-10 diesels; 3,540 hp *(2.64 MW)* sustained (356 and 353); 4 GM 16-278A diesels; 3,000 hp *(2.24 MW)* (341 and 347); 2 shafts

Speed, knots: 13. **Range, miles:** 2,500 at 12 kt

Complement: 65-75

Guns: 2 Bofors 40 mm/56 (twin). 4 or 8 Oerlikon 20 mm (4 single or 4 twin).

Radars: Surface search: SO 8; I-band.

Comment: All built in 1945. *Mei Chin* and *Mei Sung* transferred from US 1946, *Mei Ping* in 1956 and *Mei Lo* in 1962. Rebuilt in Taiwan and bear little resemblance to 1970s photographs.

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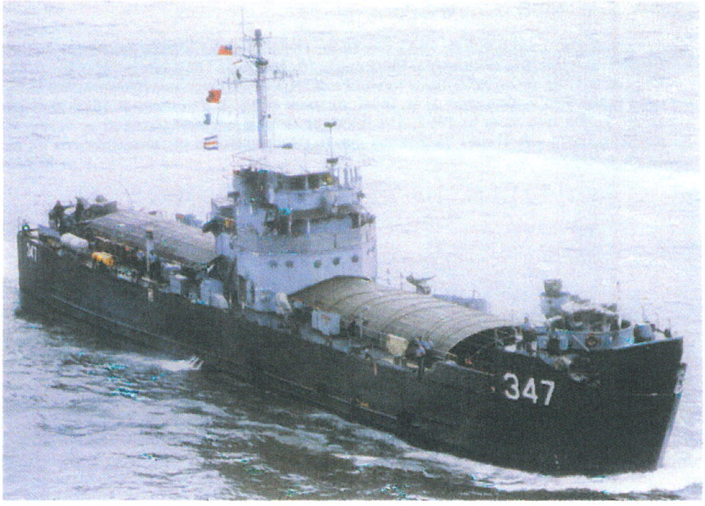

MEI SUNG *6/2000, C Chung* / 0126198

1 LST 512-1152 CLASS (FLAGSHIP) (AGF)

Name	*No*	*Builders*	*Commissioned*
KAO HSIUNG (ex-*Chung Hai*, ex-*Dukes County* LST 735)	LCC 1 (ex-219, ex-663)	Dravo Corporation, Neville Island, Penn	26 Apr 1944

Displacement, tons: 1,653 standard; 3,675 full load

Dimensions, feet (metres): 328 × 50 × 14 *(100 × 15.2 × 4.3)*

Main machinery: 2 GM 12-567A diesels; 1,800 hp *(1.34 MW)*; 2 shafts

Speed, knots: 11.6. **Range, miles:** 11,200 at 10 kt

Complement: 195

Guns: 8 Bofors 40 mm/56 (3 twin, 2 single).

Radars: Air search: Raytheon SPS 58; D-band.
Surface search: Raytheon SPS-10; G-band.

Comment: Launched on 11 March 1944. Transferred from US in May 1957 for service as an LST. Converted to a flagship for amphibious operations and renamed and redesignated (AGC) in 1964. Purchased November 1974. Note lattice mast above bridge structure, modified bridge levels, and antenna mountings on main deck. Redesignated as Command and Control Ship LCC 1.

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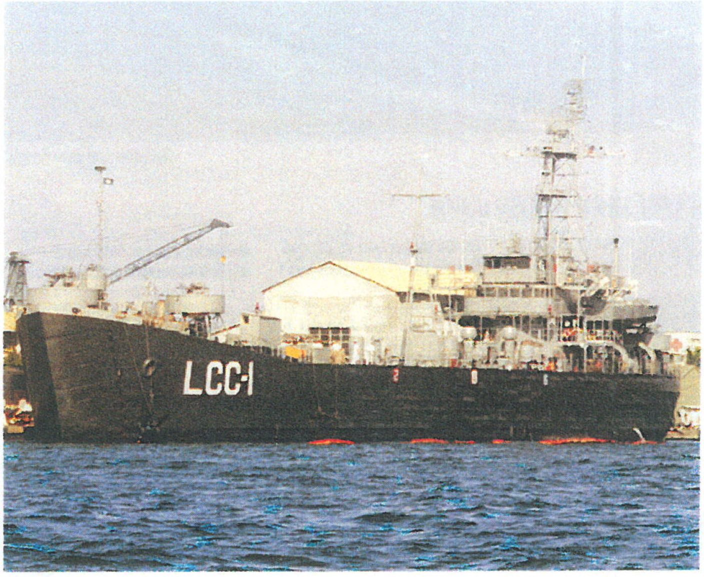


KAO HSIUNG *6/1999* / 0080783

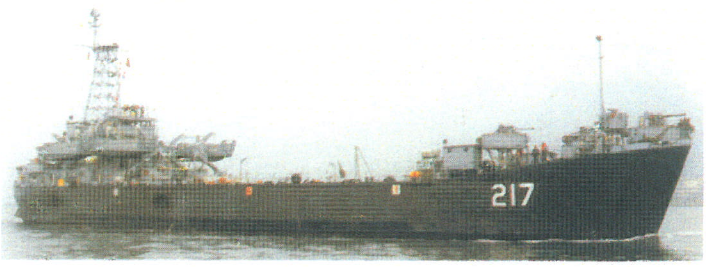
For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit

11 LST 1-510 and 512-1152 CLASSES (LST)

CHUNG HAI (ex-*LST 755*) 201 (ex-697)
CHUNG CHIEN (ex-*LST 716*) 205 (ex-679)
CHUNG SHUN (ex-*LST 732*) 208 (ex-624)
CHUNG KUANG (ex-*LST 503*) 216 (ex-646)
CHUNG SUO (ex-*Bradley County* LST 400) 217 (ex-667)
CHUNG CHI (ex-*LST 279*) 218
CHUNG CHUAN (ex-*LST 1030*) 221 (ex-651)
CHUNG CHIH (ex-*Sagadahoc County* LST 1091) 226 (ex-655)
CHUNG MING (ex-*Sweetwater County* LST 1152) 227 (ex-681)
CHUNG PANG (ex-*LST 578*) 230 (ex-629)
CHUNG YEH (ex-*Sublette County* LST 1144) 231 (ex-699)

Displacement, tons: 1,653 standard; 4,080 (3,640, 1-510 class) full load
Dimensions, feet (metres): 328 × 50 × 14 *(100 × 15.2 × 4.3)*
Main machinery: 2 GM 12-567A diesels; 1,800 hp *(1.34 MW)*; 2 shafts
Speed, knots: 11.6. **Range, miles:** 15,000 at 10 kt
Complement: Varies-100-125 in most ships
Guns: Varies-up to 10 Bofors 40 mm/56 (2 twin, 6 single) with some modernised ships rearmed with 2 USN 3 in *(76 mm)*/50 and 6—40 mm (3 twin).
Several Oerlikon 20 mm (twin or single).
Radars: Navigation: US SO 1, 2 or 8; I-band.

Comment: Constructed between 1943 and 1945. These ships have been rebuilt in Taiwan. Six transferred from US in 1946; two in 1947; one in 1948; eight in 1958; one in 1959; two in 1960; and one in 1961. Some have davits forward and aft. Pennant numbers have reverted to those used in the 1960s. One deleted in 1990, six more in 1993, one more in 1995 after going aground, and two more in 1997. The midships deck is occasionally used as a helicopter platform. These last 11 may be retained due to the cancellation of the programme for more locally built AKs. ***VERIFIED***



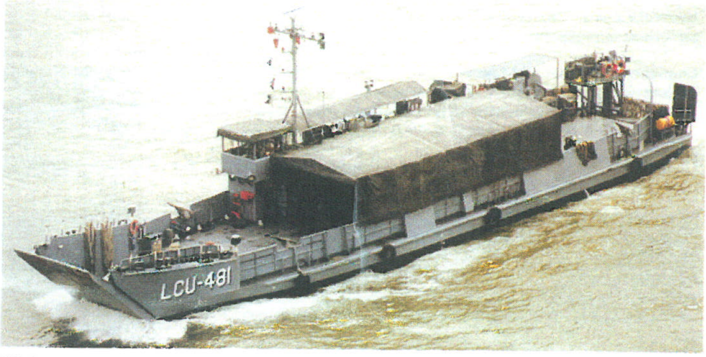
CHUNG SUO *6/2000, DTM* / 0126196

10 LCU 501 CLASS (LCU)

HO CHI (ex-*LCU 1212*) 401
HO HUEI (ex-*LCU 1218*) 402
HO YAO (ex-*LCU 1244*) 403
HO CHAO (ex-*LCU 1429*) 406
HO SHUN (ex-*LCU 1225*) 481
HO CHUNG (ex-*LCU 849*) 484
HO CHUN (ex-*LCU 892*) 494
HO YUNG (ex-*LCU 1271*) 495
HO CHIE (ex-*LCU 700*) SB 1
HO TEN (ex-*LCU 1367*) SB 2

Displacement, tons: 158 light; 309 full load
Dimensions, feet (metres): 119 × 32.7 × 5 *(36.3 × 10 × 1.5)*
Main machinery: 3 GM 6-71 diesels; 522 hp *(390 kW)* sustained; 3 shafts
Speed, knots: 10
Complement: 10-25
Guns: 2 Oerlikon 20 mm. Some also may have 2—12.7 mm MGs.

Comment: Built in US in the 1940s and transferred in 1959. *SB 1* and *SB 2* are used as auxiliaries. *Ho Feng* 405 converted for ferry duties in 1998 and serves Matzu island. ***UPDATED***



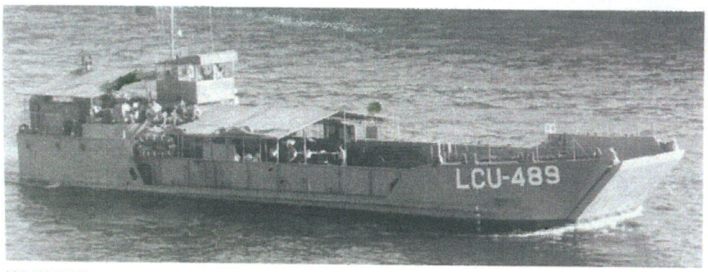
HO SHUN *6/2000*, DTM* / 0569238

6 LCU 1466 CLASS (LCU)

HO SHAN (ex-*LCU 1596*) 488
HO CHUAN (ex-*LCU 1597*) 489
HO SENG (ex-*LCU 1598*) 490
HO MENG (ex-*LCU 1599*) 491
HO MOU (ex-*LCU 1600*) 492
HO SHOU (ex-*LCU 1601*) 493

Displacement, tons: 180 light; 360 full load
Dimensions, feet (metres): 119 × 34 × 6 *(36.3 × 10.4 × 1.8)*
Main machinery: 3 Gray Marine 64 YTL diesels; 675 hp *(504 kW)*; 3 shafts
Speed, knots: 10. **Range, miles:** 800 at 11 kt
Complement: 15-25
Military lift: 167 tons or 300 troops
Guns: 3 Oerlikon 20 mm. Some may also have 2—12.7 mm MGs.

Comment: Built by Ishikawajima Heavy Industries Co, Tokyo, Japan, for transfer to Taiwan; completed in March 1955. All originally numbered in 200 series; subsequently changed to 400 series. ***VERIFIED***



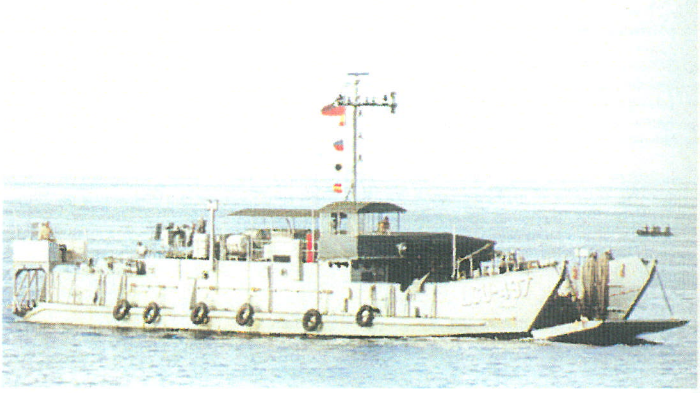
HO CHUAN *1991*

2 TAIWAN TYPE LCU (LCU)

HO FONG LCU 497
HO HU LCU 498

Displacement, tons: 190 light; 439 full load
Dimensions, feet (metres): 135.5 × 29.9 × 6.9 *(41.3 × 9.1 × 2.1)*
Main machinery: 4 Detroit diesels; 1,200 hp *(895 kW)*; 2 Kort nozzle props
Speed, knots: 11. **Range, miles:** 1,200 at 10 kt
Complement: 16
Military lift: 180 tons or 350 troops
Guns: 2—12.7 mm MGs.

Comment: Locally built versions of US types. Ramps at both ends. ***UPDATED***

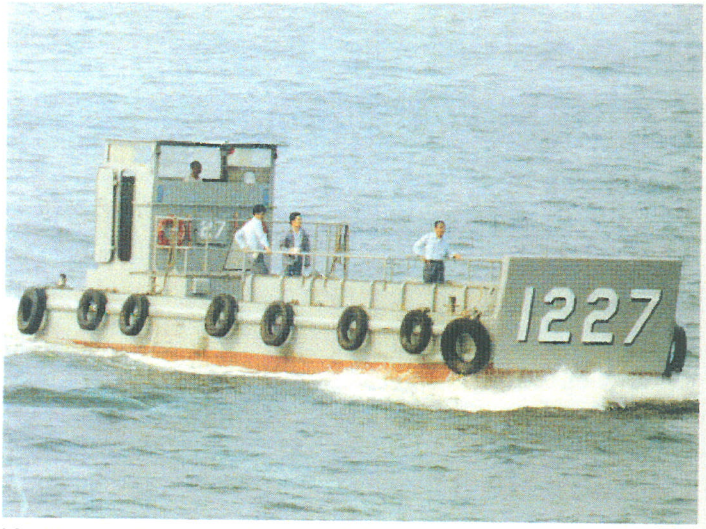


HO FONG *6/2000*, DTM* / 0569237

170 LCM 6 CLASS (LCM)

Displacement, tons: 57 full load
Dimensions, feet (metres): 56.4 × 13.8 × 3.9 *(17.2 × 4.2 × 1.2)*
Main machinery: 2 diesels; 450 hp *(336 kW)*; 2 shafts
Speed, knots: 9
Military lift: 34 tons
Guns: 1—12.7 mm MG.

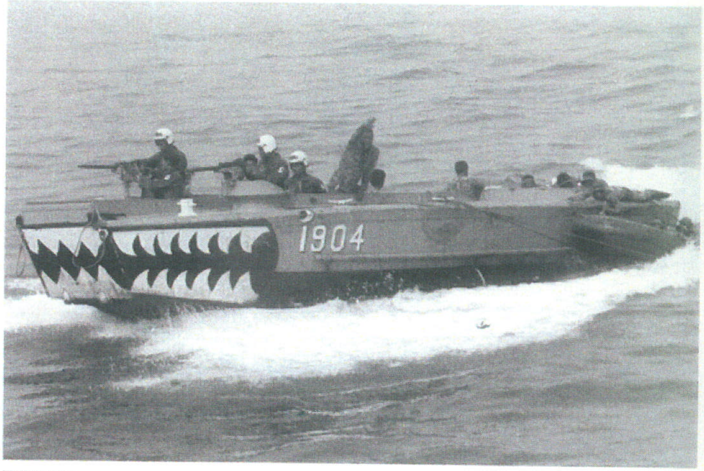
Comment: Some built in the US, some in Taiwan. 20 were exchanged for torpedoes with Indonesia. Some 55 have been deleted in the last four years. Form part of 151 Squadron. ***VERIFIED***



LCM 6 *7/2000, C Chung* / 0106603

100 LCVPs and ASSAULT CRAFT

Comment: Some ex-US, and some built in Taiwan. Most are armed with one or two 7.62 mm MGs. Two transferred to Indonesia in 1988. About 20 deleted in the last three years and 30 transferred to Honduras in 1996 for River operations. There are also a number of amphibious reconnaissance boats in the ARP 1000, 2000 and 3000 series. Form part of 151 Squadron. ***VERIFIED***



TYPE 272 *1989, DTM (Raymond Cheung)*

MINE WARFARE FORCES

Notes: A new class of minehunters is planned. Tenders may be invited in when funds are available.

4 AGGRESSIVE CLASS (MINESWEEPERS) (MSO)

Name	*No*	*Builders*	*Commissioned*
YUNG YANG (ex-*Implicit*)	1306 (ex-455)	Wilmington Boat	10 Mar 1954
YUNG TZU (ex-*Conquest*)	1307 (ex-488)	Martenac, Tacoma	20 July 1955
YUNG KU (ex-*Gallant*)	1308 (ex-489)	Martenac, Tacoma	14 Sep 1955
YUNG TEH (ex-*Pledge*)	1309 (ex-492)	Martenac, Tacoma	20 Apr 1956

Displacement, tons: 720 standard; 780 full load
Dimensions, feet (metres): 172.5 × 35.1 × 14.1 *(52.6 × 10.7 × 4.3)*
Main machinery: 4 Packard ID-1700 or Waukesha diesels; 2,280 hp *(1.7 MW)*; 2 shafts; cp props
Speed, knots: 14. **Range, miles:** 3,000 at 10 kt
Complement: 86 (7 officers)
Guns: 2—12.7 mm MGs.
Radars: Navigation: Sperry SPS-53L; I-band.
Sonars: General Electric SQQ-14; VDS; active minehunting; high frequency.

Comment: Transferred by sale to Taiwan from the USN 3 August and 30 September 1994. Delivery was delayed into 1995 while replanking work was carried out in the US. All recommissioned 1 March 1995. Second batch of three planned to transfer but were subsequently scrapped after cannibalisation for spares. All are fitted with SLQ-37 mechanical acoustic and magnetic sweeps and can carry an ROV. The plan is to update the class with a Unisys SYQ-12 minehunting system and Pluto ROVs.

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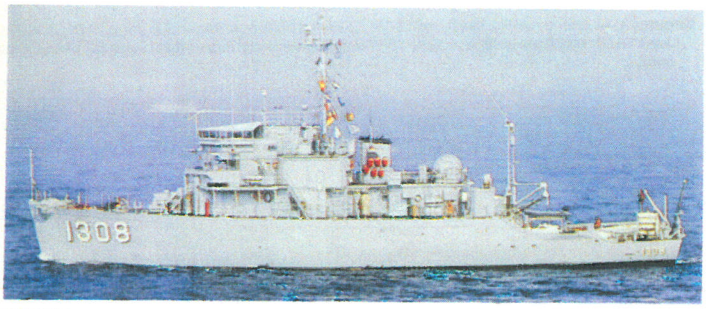

YUNG KU *6/2000**, ***DTM*** / 0569242

4 ADJUTANT and MSC 268 CLASSES (MINESWEEPERS—COASTAL) (MSC)

YUNG CHUAN (ex-*MSC 278*) 158
YUNG FU (ex-*Macaw*, ex-*MSC 77*) 162
YUNG REN (ex-*St Nicholas*, ex-*MSC 64*) 167
YUNG SUI (ex-*Disksmude*, ex-*MSC 65*) 168

Displacement, tons: 375 full load
Dimensions, feet (metres): 144 × 27.9 × 8 *(43.9 × 8.5 × 2.4)*
Main machinery: 2 GM 8-268A diesels; 880 hp *(656 kW)*; 2 shafts
Speed, knots: 13. **Range, miles:** 2,500 at 12 kt
Complement: 35
Guns: 2 Oerlikon 20 mm (twin).
Radars: Navigation: Decca 707; I-band.
Sonars: Simrad 950; hull-mounted; minehunting; high frequency.

Comment: Non-magnetic, wood-hulled minesweepers built in the US in the 1950s specifically for transfer to allied navies. All refitted 1984-86. All are in very poor condition. Several deleted so far. Two put back in service in 1996 and one in 1997 to replace three others paid off.

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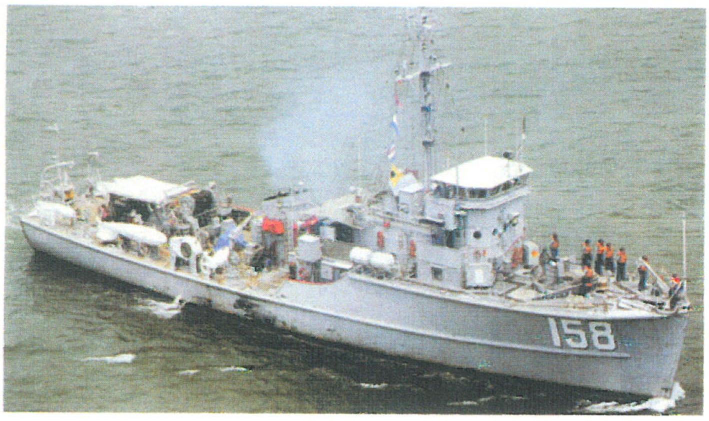

YUNG CHUAN *6/2000**, ***DTM*** / 0569241

4 YUNG FENG (MWV 50) CLASS (MINEHUNTERS—COASTAL) (MHC)

YUNG FENG 1301 **YUNG CHIA** 1302 **YUNG TING** 1303 **YUNG SHUN** 1305

Displacement, tons: 500 full load
Dimensions, feet (metres): 163.1 × 28.5 × 10.2 *(49.7 × 8.7 × 3.1)*
Main machinery: 2 MTU 8V 396 TB93 diesels; 2,180 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 14. **Range, miles:** 3,500 at 14 kt
Complement: 45 (5 officers)
Guns: 1—20 mm. 2—12.7 mm MGs.
Radars: Navigation: I-band.
Sonars: TSM-2022; hull-mounted; active minehunting; high frequency.

Comment: Built for the Chinese Petroleum Corporation by Abeking & Rasmussen at Lemwerder, Germany. First four delivered in 1991 as offshore oil rig support ships and then converted for minehunting in Taiwan. Thomson Sintra IBIS V minehunting system is fitted and two STN Pinguin B3 ROVs are carried. The civilian livery has been abandoned. These ships spend little time at sea.

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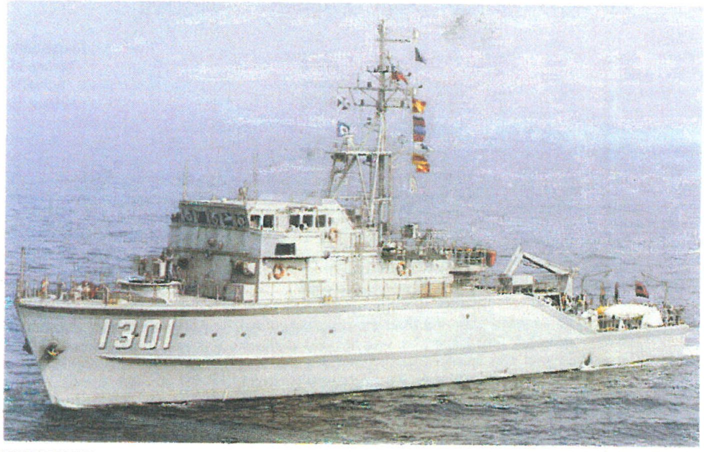

YUNG FENG *6/2000**, ***DTM*** / 0569240

SURVEY AND RESEARCH SHIPS

1 ALLIANCE CLASS (AGOR)

Name	*No*	*Builders*	*Launched*	*Commissioned*
TA KUAN	1601	Fincantieri, Muggiano	17 Dec 1994	27 Sep 1995

Displacement, tons: 2,466 standard; 3,180 full load
Dimensions, feet (metres): 305.1 × 49.9 × 16.7 *(93 × 15.2 × 5.1)*
Main machinery: Diesel-electric; 3 MTU/AEG diesel generators; 5,712 hp(m) *(4.2 MW)*; 2 AEG motors; 5,100 hp(m) *(3.75 MW)*; 2 shafts; bow thruster; stern trainable and retractable thruster
Speed, knots: 15. **Range, miles:** 12,000 at 12 kt
Complement: 82
Guns: 2—12.7 mm MGs.
Radars: Navigation: H/I-band.

Comment: Ordered in June 1993 and laid down 8 April 1994. Almost identical to the NATO vessel. Designed for oceanography and hydrographic research. Facilities include laboratories, position location systems, and overside deployment equipment. Equipment includes a Simrad side scan sonar EM 1200, deep and shallow echo-sounders, two radars, Navsat and Satcom, an ROV for remote inspection, and a dynamic positioning system with bow thruster and stern positioning propeller.

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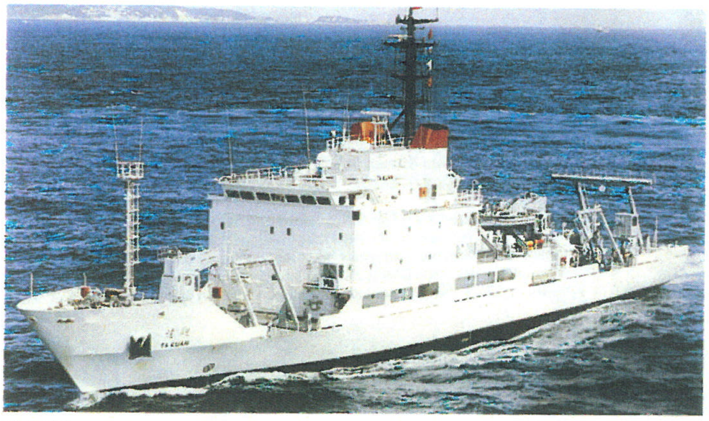

TA KUAN *8/1997*, ***C Chung*** / 0019239

AUXILIARIES

1 COMBAT SUPPORT SHIP (AOEHM)

Name	*No*	*Builders*	*Launched*	*Commissioned*
WU YI	530	China SB Corporation, Keelung	4 Mar 1989	23 June 1990

Displacement, tons: 7,700 light; 17,000 full load
Dimensions, feet (metres): 531.8 × 72.2 × 28 *(162.1 × 22 × 8.6)*
Main machinery: 2 MAN 14-cyl diesels; 25,000 hp(m) *(18.37 MW)*; 2 shafts
Speed, knots: 21. **Range, miles:** 9,200 at 10 kt
Cargo capacity: 9,300 tons
Missiles: SAM: 1 Sea Chaparral quad launcher.
Guns: 2 Bofors 40 mm/70. 2 Oerlikon 20 mm GAM-BO1. 4—12.7 mm MGs.
Countermeasures: Decoys: 2 chaff launchers.
ESM: Radar warning.
Radars: 2 navigation; I-band.
Helicopters: Platform for CH-47 or S-70C(M)1.

Comment: Largest unit built so far for the Taiwanese Navy. Design assisted by the United Shipping Design Center in the US. Beam replenishment rigs on both sides. SAM system on forecastle, 40 mm guns aft of the funnels.

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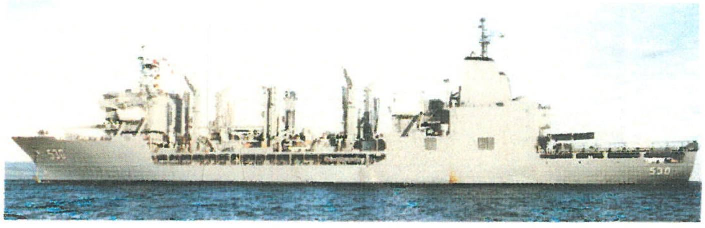


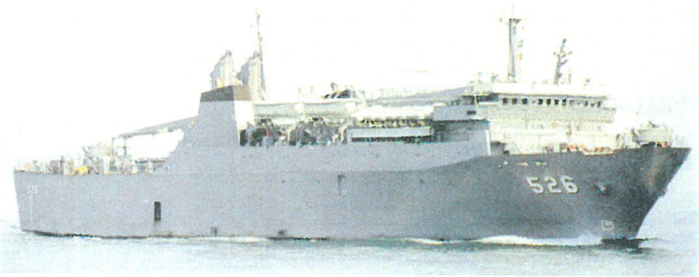
WU YI *4/2002*, ***Chris Sattler*** / 0534113

3 WU KANG CLASS (ATTACK TRANSPORTS) (AKM)

Name	*No*	*Builders*	*Commissioned*
YUEN FENG	524	China SB Corporation, Keelung	10 Sep 1982
WU KANG	525	China SB Corporation, Keelung	9 Oct 1984
HSIN KANG	526	China SB Corporation, Keelung	30 Nov 1988

Displacement, tons: 2,804 standard; 4,845 full load
Dimensions, feet (metres): 334 × 59.1 × 16.4 *(101.8 × 18 × 5)*
Main machinery: 2 diesels; 2 shafts; bow thruster
Speed, knots: 20. **Range, miles:** 6,500 at 12 kt
Complement: 61 (11 officers)
Military lift: 1,400 troops
Missiles: SAM: 1 Sea Chaparral quad launcher.
Guns: 2 Bofors 40 mm/60. 2 or 4—12.7 mm MGs.
Countermeasures: ESM: WD-2A (524 only); intercept.

Comment: First three were built and then the programme stopped. Restarted with the fourth of class laid down in July 1994. The plan was to build at about one a year to a final total of seven, but the programme has been cancelled without the fourth ship being completed. With a helicopter platform, stern docking facility and davits for four LCVP, the design resembles an LPD. Used mostly for supplying garrisons in offshore islands, and on the Spratley and Pratas islands in the South China Sea. SAM launcher is mounted aft of the foremast. Accommodation is air conditioned. *Hsin Kang* was badly damaged in harbour in collision with a merchant ship in March 1996, but was back in service by mid-1999. ***UPDATED***



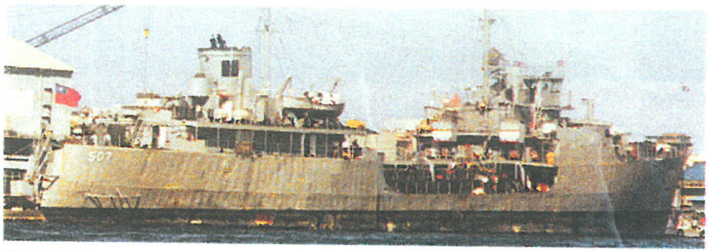
HSIN KANG *6/2002*, Ships of the World* / 0569239

3 PATAPSCO CLASS (SUPPORT TANKERS) (AOTL)

Name	*No*	*Builders*	*Commissioned*
CHANG BAI (ex-*Pecatonia* AOG 57)	507	Cargill, Inc, Savage, Minnesota, MN	12 Feb 1944
LUNG CHUAN (ex-*Endeavour*, ex-*Namakagon* AOG 53)	515	Cargill, Inc, Savage, Minnesota, MN	10 May 1945
HSIN LUNG (ex-*Elkhorn* AOG 7)	517	Cargill, Inc, Savage, Minnesota, MN	28 Nov 1945

Displacement, tons: 1,850 light; 4,335 full load
Dimensions, feet (metres): 310.8 × 48.5 × 15.7 *(94.8 × 14.8 × 4.8)*
Main machinery: 2 GM 16-278A diesels; 3,000 hp *(2.24 MW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 7,000 at 12 kt
Complement: 124
Cargo capacity: 2,000 tons
Guns: 1 USN 3 in *(76 mm)*/50. 2 Bofors 40 mm/60.
Radars: Navigation: Raytheon SPS-21; G/H-band.

Comment: *Lung Chuan* was launched on 6 December 1944 and transferred from the US to New Zealand on 5 October 1962 for use as an Antarctic resupply ship; strengthened for polar operations and renamed *Endeavour*, returned to the US Navy on 29 June 1971 and retransferred to Taiwan the same date. *Chang Bai* was launched on 6 December 1943 and was transferred to Taiwan in 1971. Hsin Lang was launched on 7 September 1942 and was transferred in 1972. ***VERIFIED***



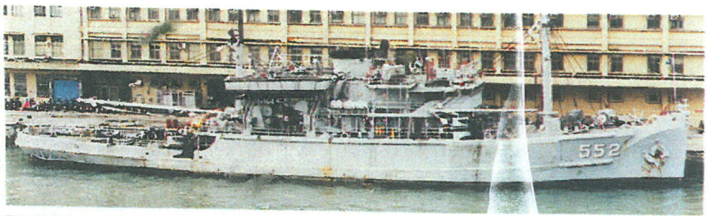
CHANG BAI *5/1999* / 0080789

1 SALVAGE SHIP (ARS)

Name	*No*	*Builders*	*Commissioned*
TA HU (ex-*Grapple*)	552 (ex-ARS 7)	Basalt Rock, USA	16 Dec 1943

Displacement, tons: 1,557 standard; 1,745 full load
Dimensions, feet (metres): 213.5 × 39 × 15 *(65.1 × 11.9 × 4.6)*
Main machinery: Diesel-electric; 4 Cooper Bessemer GSB-8 diesels; 3,420 hp *(2.55 MW)*; 2 generators; 2 motors; 2 shafts
Speed, knots: 14. **Range, miles:** 8,500 at 13 kt
Complement: 85
Guns: 2 Oerlikon 20 mm.
Radars: Navigation: SPS-53; I-band.

Comment: Fitted for salvage, towing and compressed-air diving. *Ta Hu* transferred from US 1 December 1977 by sale. The reported transfer from the US of ex-*Conserver* did not take place. ***VERIFIED***



TA HU *1/1999, van Ginderen Collection* / 0050231

6 FLOATING DOCKS (YFD)

HAY TAN (ex-*AFDL 36*) AFDL 1
KIM MEN (ex-*AFDL 5*) AFDL 2
HAN JIH (ex-*AFDL 34*) AFDL 3
FO WU 5 (ex-*ARD 9*) ARD 5
FO WU 6 (ex-*Windsor* ARD 22) ARD 6
FO WU 7 (ex-*AFDM 6*)

Comment: Former US Navy floating dry docks. *Hay Tan* transferred in March 1947, *Kim Men* in January 1948, *Han Jih* in July 1959, *Fo Wu 5* in June 1971, *Fo Wu 6* in June 1971. *Fo Wu 6* by sale 19 May 1976 and *Fo Wu 5* on 12 January 1977. *Fo Wu 7* transferred by sale in 1999. ***VERIFIED***

TUGS

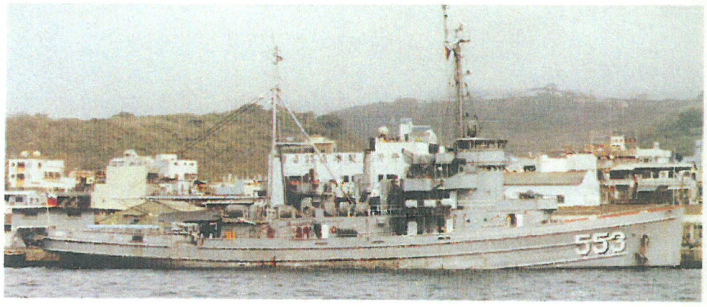
5 CHEROKEE CLASS (ATF/ARS)

TA WAN (ex-*Apache*) ATF 551
TA HAN (ex-*Tawakoni*) ATF 553
TA KANG (ex-*Achomawi*) ATF 554
TA FUNG (ex-*Narragansett*) ATF 555
TA TAI (ex-*Shakori*) ATF 563

Displacement, tons: 1,235 standard; 1,731 full load
Dimensions, feet (metres): 205 × 38.5 × 17 *(62.5 × 11.7 × 5.2)*
Main machinery: Diesel-electric; 4 GM 12-278 diesels; 4,400 hp *(3.28 MW)*; 4 generators; 1 motor; 3,000 hp *(2.24 MW)*; 1 shaft
Speed, knots: 15. **Range, miles:** 6,000 at 14 kt
Complement: 85
Guns: 1 Bofors 40 mm/60. Several 12.7 mm MGs.

Comment: All built between 1943 and 1945. *Ta Wan* transferred from US in June 1974; *Ta Han* in June 1978; and the last three in June 1991 together with two more which were cannibalised for spares.

VERIFIED



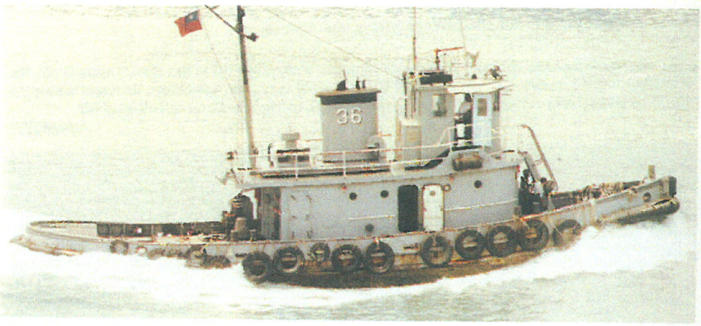
TA HAN *4/1995* / 0080790

11 HARBOUR TUGS (YTL)

YTL 16-17
YTL 27-30
YTL 32-36

Comment: Replacements for the old US Army type which were scrapped in 1990/91. Some are used for fire fighting.

VERIFIED



YTL 36 *5/1997, van Ginderen Collection* / 0019242

19 LARGE HARBOUR TUGS (YTB)

YTB 37-39
YTB 41-43
YTB 45-49
YTB 150-157

Comment: Various types of about 30 m length.

VERIFIED

COAST GUARD

Headquarters Appointments

Director General of the Coast Guard:
Dr Wang Chun
Deputy Director General (Law Enforcement):
You Chian-Tshiz
Deputy Administrator (Coastal Patrol):
Lieutenant General Bi
Deputy Administrator (Oceanic Patrol):
Vice Admiral Liu Chih-Yuan

Notes: The Coast Guard Agency was restructured on 28 January 2001 by merging the former agencies of Maritime Police, Customs and Coastal Defence Command. It is responsible for coastal and harbour security, maritime law enforcement, anti-smuggling, anti-terrorism, SAR, fishery protection, and pollution control. It consists of two major wings. The Oceanic Patrol wing has 2,500 personnel in 20 patrol detachments around the coast. The Coastal Patrol wing has 14,701 personnel in 24 battalions. In times of crisis, the Oceanic and Coastal patrol wings would be integrated into the Navy and Army respectively.

Bases

HQ: Tamsui

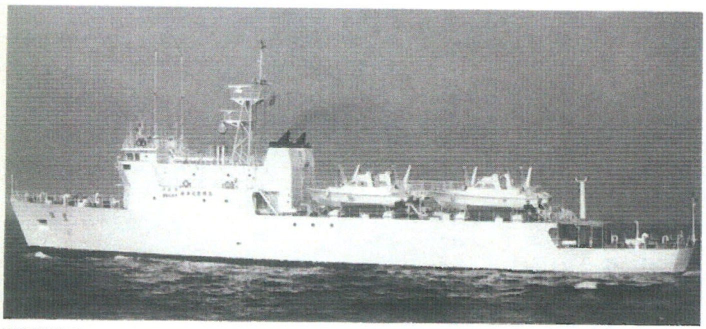
2 HO HSING CLASS (LARGE PATROL CRAFT) (WPSO)

HO HSING 509 **WEI HSING** 510

Displacement, tons: 1,823 full load
Dimensions, feet (metres): 270 × 38.1 × 13.5 *(82.3 × 11.6 × 4.1)*
Main machinery: 2 MTU 16V 1163 TB93 diesels; 13,310 hp(m) *(9.78 MW)* sustained; 2 shafts; cp props; bow thruster
Speed, knots: 22. **Range, miles:** 7,000 at 16 kt
Complement: 80 (18 officers)
Guns: 2—12.7 mm MGs.
Radars: Surface search: Racal Decca; I-band.

Comment: Built by the China SB Corporation, Keelung, to a Tacoma design and both delivered 26 December 1991. Four high-speed interceptor boats are carried on individual davits. This is a variant of the US Coast Guard 'Bear' class.

VERIFIED



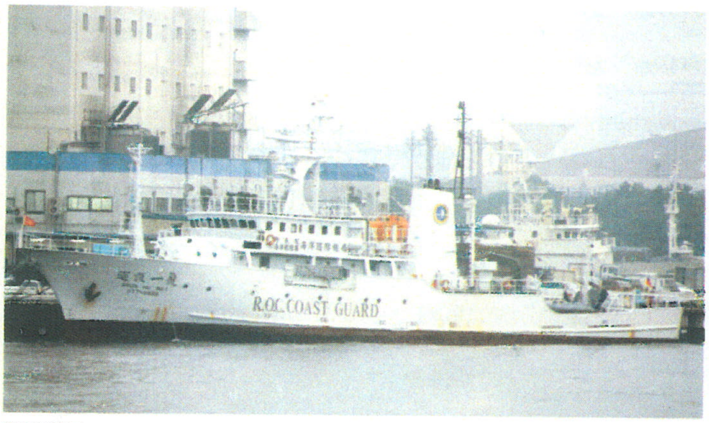
WEI HSING *6/2001, Ships of the World* / 0121408

5 + (4) OFFSHORE PATROL VESSELS (WPBO)

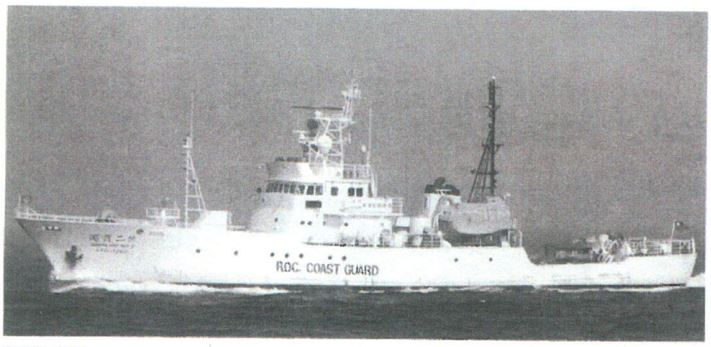
SHUN HU 1-3 **SHUN HU 5-6**

Comment: Five former Ministry of Agriculture vessels conduct fishery protection duties. Ocean operations are conducted by: *Shun Hu 1* (800 tons) and *Shun Hu 2-3* (400 tons); Coastal operations are conducted by: *Shun Hu 5* (100 tons) and *Shun Hu 6* (200 tons). No other details are known. There are plans to replace these four larger vessels but a contract has not been confirmed.

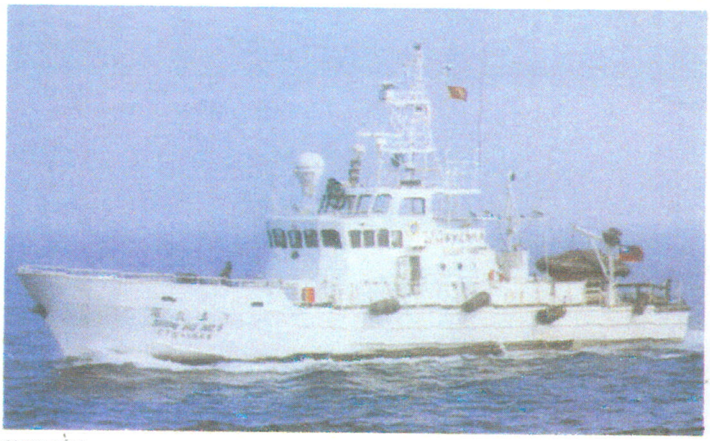
VERIFIED



SHUN HU 1 *6/2001, Mitsuhiro Kadota* / 0121409



SHUN HU 2 *6/2001, Ships of the World* / 0121410



SHUN HU 5 *6/2001, C Chung* / 0126199

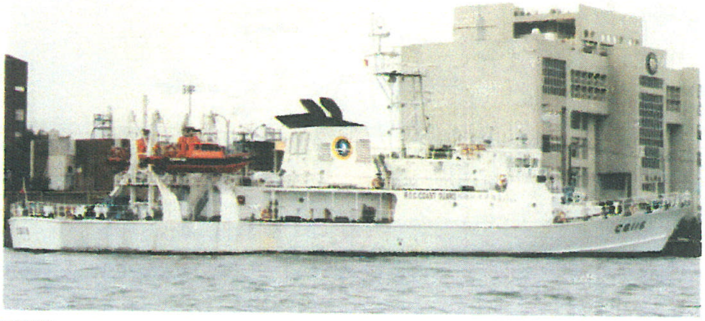
1 OFFSHORE PATROL VESSEL (WPSO)

TAIPEI 116

Displacement, tons: 680 full load
Dimensions, feet (metres): 201.4 × 31.2 × 9.2 *(61.4 × 9.5 × 2.8)*
Main machinery: 2 MTU 20V 1163 TB93 diesels; 20,128 hp(m) *(14.79 MW)*; 2 shafts
Speed, knots: 25. **Range, miles:** 4,150 at 15 kt
Complement: 40
Guns: 2—20 mm T75. 3—12.7 mm MGs.
Radars: Navigation: I-band.

Comment: Based on the naval 'Jin Chiang' class, ship built by Chung-Hsin Ship Building Corporation, launched in November 1999 and commissioned on 20 March 2000.

VERIFIED



TAIPEI *9/2002, C Chung* / 0534124

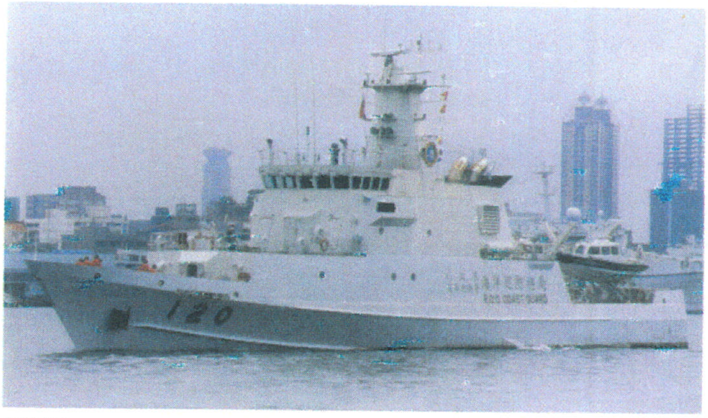
4 OFFSHORE PATROL CRAFT (WPSO)

TAICHUNG 117 **KEELUNG** 118 **HUALIEN** 119 **PENGHU** 120

Displacement, tons: 630 full load
Dimensions, feet (metres): 208.3 × 30.4 × 8.9 *(63.5 × 9.28 × 2.7)*
Main machinery: 2 MTU 1163 TB93 diesels; 15,608 hp(m) *(11.48 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 2,400 at 18 kt
Complement: 46 (9 officers)
Guns: 1—20 mm T 75.
Radars: Surface search: JRC E/F- and I-bands.

Comment: Built by Ching-Fu SB Corporation in Kaohsiung, to Lürssen Asia design. Delivered 28 June 2001. Two high-speed interceptor boats are carried on individual davits.

VERIFIED



PENGHU *10/2001, C Chung* / 0126201

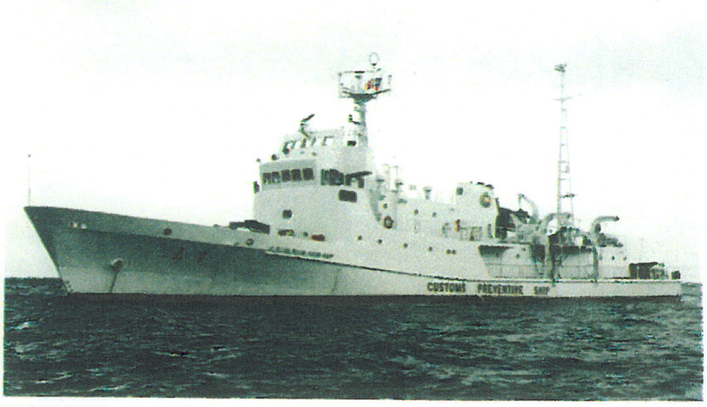
3 PAO HSING CLASS (COASTAL PATROL CRAFT) (WPBO)

PAO HSING **CHIN HSING** **TEH HSING** 109

Displacement, tons: 550 full load
Dimensions, feet (metres): 189.6 × 25.6 × 6.9 *(57.8 × 7.8 × 2.1)*
Main machinery: 2 MAN 12V25/30 diesels; 7,183 hp(m) *(5.28 MW)* sustained; 2 shafts
Speed, knots: 20
Complement: 40
Guns: 2—12.7 mm MGs.
Radars: Surface search: JRC; I-band.

Comment: First delivered 20 May 1980; second 23 May 1985. Built by Keelung yard of China SB Corporation.

VERIFIED



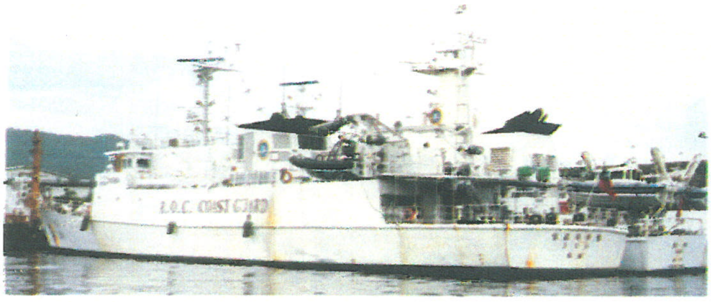
PAO HSING (Customs colours) *1994, Taiwan Customs* / 0080793

2 COASTAL PATROL CRAFT (WPSO)

MOU HSING **FU HSING** 106

Displacement, tons: 917 full load
Dimensions, feet (metres): 214.6 × 31.5 × 10.5 *(65.4 × 9.6 × 3.2)*
Main machinery: 2 MTU 16V 1163 TB93 diesels; 13,310 hp(m) *(9.78 MW)* sustained; 2 shafts
Speed, knots: 28. **Range, miles:** 4,500 at 12 kt
Complement: 54
Guns: 2—12.7 mm MGs.
Radars: Surface search: Racal Decca; I-band.

Comment: Ordered from Wilton Fijenoord in September 1986, and commissioned 14 June 1988.
VERIFIED



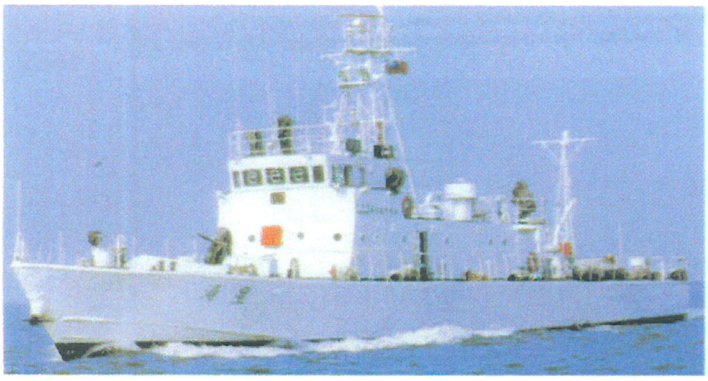
FU HSING *9/2002, C Chung* / 0534122

1 HSUN HSING CLASS (COASTAL PATROL CRAFT) (WPBO)

HSUN HSING

Displacement, tons: 264 full load
Dimensions, feet (metres): 146 × 24.6 × 5.8 *(44.5 × 7.5 × 1.7)*
Main machinery: 3 MTU 16V 396 TB93 diesels; 6,540 hp(m) *(4.81 MW)* sustained; 3 shafts
Speed, knots: 28. **Range, miles:** 1,500 at 20 kt
Complement: 41
Guns: 3 Oerlikon 20 mm.
Radars: Surface search: JRC; I-band.

Comment: Built by China SB Corporation and delivered 15 December 1985.
VERIFIED



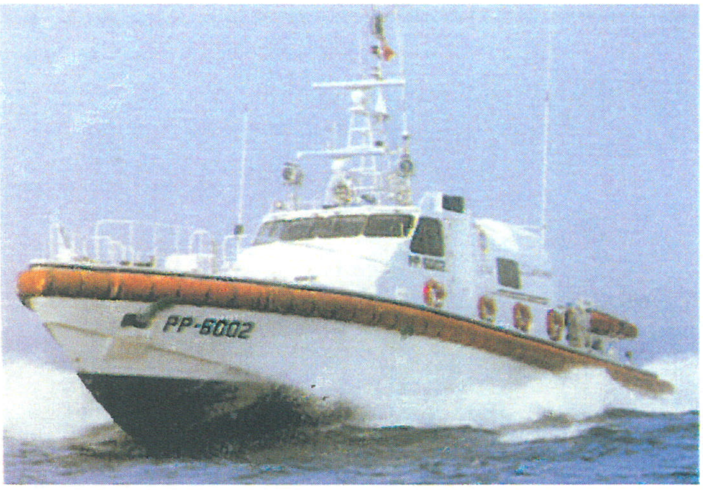
HSUN HSING *10/2001, C Chung* / 0126200

13 COASTAL PATROL CRAFT (WPBF)

PP 6001-6003 **6005-6007** **6009-6012** **6014-6016**

Displacement, tons: 91 full load
Dimensions, feet (metres): 91.9 × 20.3 × 7.9 *(28 × 6.2 × 2.4)*
Main machinery: 2 Paxman 12V P185 diesels; 6,645 hp(m) *(4.89 MW)* sustained; 2 shafts; cp props
Speed, knots: 40. **Range, miles:** 600 at 25 kt
Complement: 12
Guns: 2—12.7 mm MGs.
Radars: Surface search: 2 Racal Decca; I-band.

Comment: Built by Lung Teh Shipyard, Taiwan from March 1996. First six delivered in 1997 and following seven in 2001. GRP hulls with some Kevlar protection. Can carry a 6.5 m RIB. May be given new pennant numbers.
VERIFIED



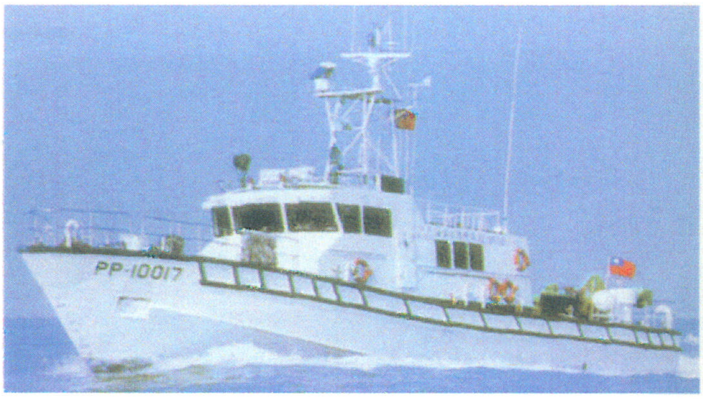
PP 6002 *10/2001, C Chung* / 0126203

11 LARGE PATROL CRAFT (WPB)

PP 10001-10002 **10005-10010** **10017-10019**

Displacement, tons: 140 full load
Dimensions, feet (metres): 90 × 28.6 × 6 *(27.4 × 8.7 × 1.8)*
Main machinery: 2 MTU diesels; 6,000 hp(m) *(4.4 MW)*; 2 shafts
Speed, knots: 30
Guns: 2—12.7 mm MGs (aft).
Radars: Surface search: Decca; I-band.

Comment: The first pair were former naval craft transferred 8 December 1992. Two more completed in October 1994, three more by February 1995. The construction programme continues.
VERIFIED

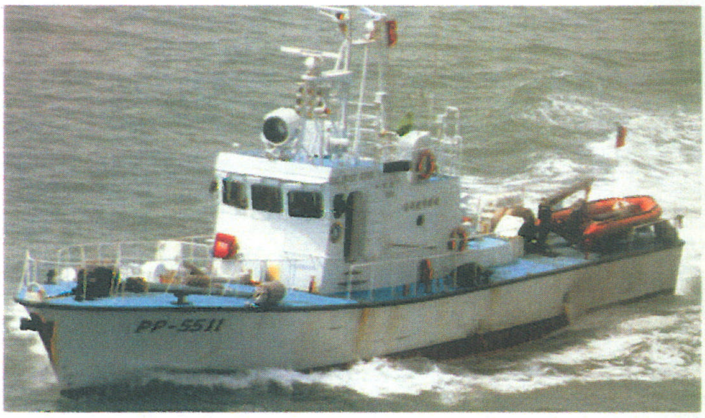


PP 10017 *10/2001, C Chung* / 0126205

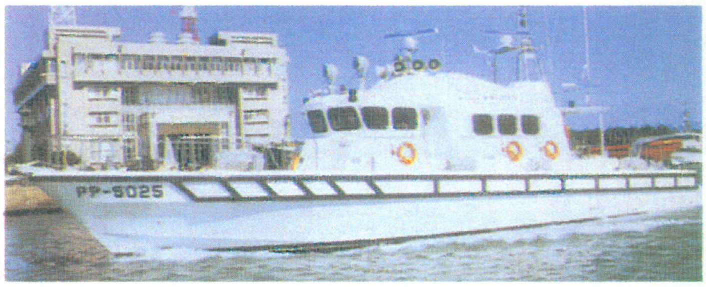
71 COASTAL PATROL CRAFT (WPB)

No/Type	*Displacement, tons*	*Speed, knots*	*Pennant Numbers series*
10 PP 5500	55		PP 5501-5503, 5505-5511
15 PP 5000	50	32	PP 5001-5003, 5005-5008, 5010-5013, 5015-5016, 5022-5023, 5025-5026, 5028-5032
9 PP 3550	35		PP 3550, 3552-3553, 3555-3559, 3561
23 PP 3500	35	28	PP 3503, 3505, 3507, 3510-3513, 3516-3522, 3525, 3527, 3530-3531, 3535-3539
14 PP 3000	30	45	PP 3002-3003, 3005-3009, 3011-3012, 3015-3019

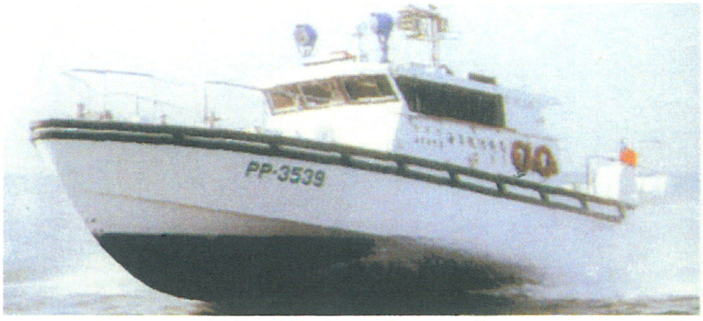
Comment: These are all armed with 12.7 mm MGs and capable of speeds up to 35 kt. The pennant numbers are not consecutive, as some have been deleted. *P 805* sunk in November 1997. May have been given new pennant numbers.
VERIFIED



PP 5511 *6/2002, C Chung* / 0534123



PP 5025 *10/2001, C Chung* / 0126207



PP 3539 *10/2001, C Chung* / 0126208

CUSTOMS

Headquarters Appointments

Director General of Customs:
Chung Huo-Cheng

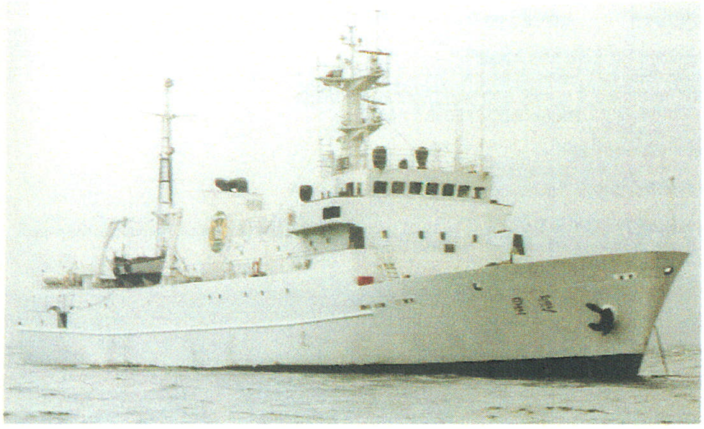
Notes: Following the restructuring of the Coast Guard on 28 January 2001, the Customs service roles include harbour patrol and light tending. In addition to the ships listed, there are a large number of harbour launches.

1 YUN HSIUNG CLASS (COASTAL PATROL CRAFT) (ABU)

YUN HSIUNG

Displacement, tons: 964 full load
Dimensions, feet (metres): 213.3 × 32.8 × 9.5 *(65 × 10 × 2.9)*
Main machinery: 2 MAN 12V 25/30 diesels; 7,183 hp(m) *(5.28 MW)*; 2 shafts
Speed, knots: 18
Complement: 67
Guns: 2—12.7 mm MGs.
Radars: Surface search: JRC; I-band.

Comment: Built by China SB Corporation and delivered 28 December 1987. Retained by Customs as a light-house tender. ***VERIFIED***



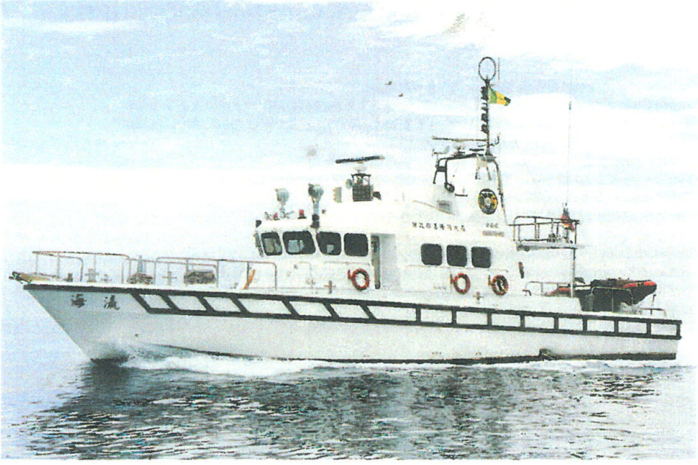
YUN HSING *1/2000, C Chung* / 0106606

4 HAI YING CLASS (INSHORE PATROL CRAFT) (WPB)

HAI YING **HAI TUNG** **HAI KO** **HAI TA**

Displacement, tons: 99.43 full load
Dimensions, feet (metres): 82.8 × 19.0 × 10.7 *(25.25 × 5.8 × 3.3)*
Main machinery: 2 Deutz MWM TBD 620 V12 diesels; 4,314 bhp *(2,646 kW)*; 2 shafts
Speed, knots: 32.6
Complement: 7
Guns: 2—9 mm T75.
Radars: Surface search: Furuno; I-band.

Comment: Transferred from the Coast Guard on 28 December 2000. ***VERIFIED***



HAI YING CLASS *12/2000, Taiwan Customs* / 0114555

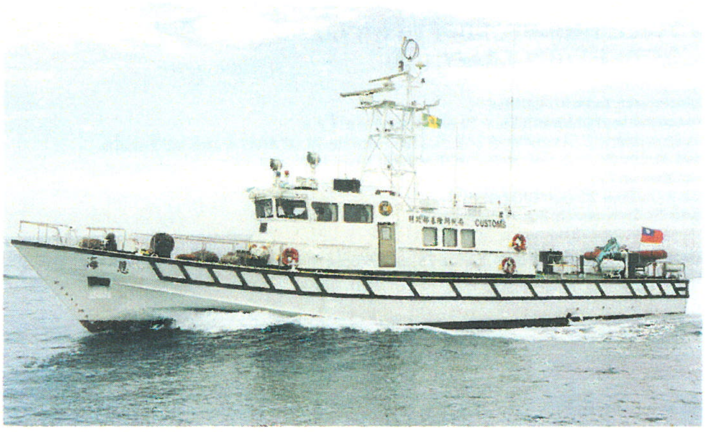
4 HAI CHENG CLASS (INSHORE PATROL CRAFT) (WPB)

HAI CHENG **HAI EN** **HAI LIANG** **HAI CHING**

Displacement, tons: 147 full load
Dimensions, feet (metres): 100 × 22.3 × 11.6 *(30.5 × 6.8 × 3.6)*
Main machinery: 2 MTU diesels; 6,000 hp(m) *(4.4 MW)*; 2 shafts
Speed, knots: 30
Complement: 8
Guns: 2—9 mm T75.
Radars: Surface search: Decca; I-band.

Comments: Transferred from the Coast Guard on 26 December 2000.

VERIFIED



HAI CHENG CLASS *12/2000, Taiwan Customs* / 0114556

Tanzania

Country Overview

The United Republic of Tanzania was formed by the federation of the former British protectorates of Tanganyika and Zanzibar in 1964. It also includes Pemba, Mafia and other offshore islands. Situated in south-eastern Africa, it has a total area of 364,900 square miles and is bordered to the north by Uganda and Kenya, to the west by Rwanda, Burundi, Democratic Republic of Congo and Zambia and to the south by Mozambique and Malawi. It has a 767 n mile coastline with the Indian Ocean. The country also includes parts of Lake Tanganyika, Lake Victoria and Lake Malawi. Dodoma is the capital while the former capital, Dar es Salaam, is the largest city and principal port. Territorial seas (12 n miles) are claimed. A 200 n mile EEZ has also been claimed but the limits are not fully defined by boundary agreements.

Headquarters Appointments

Commander of the Navy:
Major General L G Sande

General

There is a small Coastguard Service (KMKM), based on Zanzibar, which uses small boats for anti-smuggling patrols.

Personnel

(a) 2004: 1,050 (including Zanzibar)
(b) Voluntary service

Coast Defence

85 mm mobile gun battery.

Bases

Dar Es Salaam, Zanzibar, Mtwara. Kigoma (Lake Tanganyika) and Mwanza (Lake Victoria).

PATROL FORCES

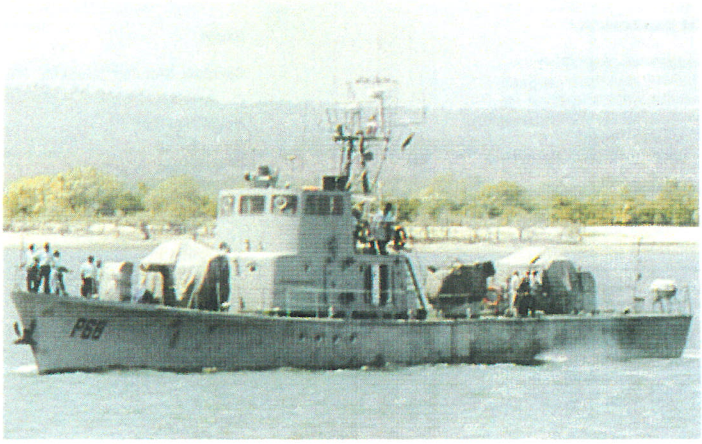
Notes: The Police have four 'Yulin' class patrol boats which are probably non-operational.

2 SHANGHAI II CLASS (FAST ATTACK CRAFT—GUN) (PB)

MZIZI P 67 **MZIA** P 68

Displacement, tons: 134 full load
Dimensions, feet (metres): 127.3 × 17.7 × 5.6 *(38.8 × 5.4 × 1.7)*
Main machinery: 2 Type L12-180 diesels; 2,400 hp(m) *(1.76 MW)* (forward); 2 Type 12-D-6 diesels; 1,820 hp(m) *(1.34 MW)* (aft); 4 shafts
Speed, knots: 30. **Range, miles:** 700 at 16.5 kt
Complement: 38
Guns: 4—37 mm/63 (2 twin). 4—25 mm/80 (2 twin).
Radars: Surface search: Skin Head; E/F-band.

Comment: Six transferred by the People's Republic of China in 1971-72, two more in June 1992. ***UPDATED***



MZIA
5/2002, Ships of the World / 0525923

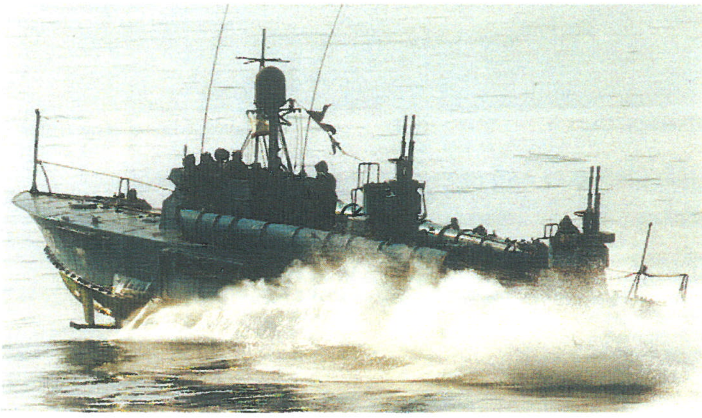
2 HUCHUAN CLASS (FAST ATTACK CRAFT—TORPEDO) (PTK)

P 43 P 44

Displacement, tons: 39 standard; 45.8 full load
Dimensions, feet (metres): 71.5 × 20.7 oa × 11.8 (hullborne) *(21.8 × 6.3 × 3.6)*
Main machinery: 3 Type M 50 diesels; 3,300 hp(m) *(2.4 MW)* sustained; 3 shafts
Speed, knots: 50. **Range, miles:** 500 at 30 kt
Complement: 16
Guns: 4—14.5 mm (2 twin) MGs.
Torpedoes: 2—21 in *(533 mm)* tubes.
Radars: Surface search: Skin Head; E/F-band.

Comment: Four transferred from the People's Republic of China 1975. After a major effort in 1992, were all operational and reported to be in good condition but by 1998 two had been laid up. This pair based at Kigoma on Lake Tanganyika. One gun mounting is forward of the bridge. Pennant numbers may have changed.

UPDATED



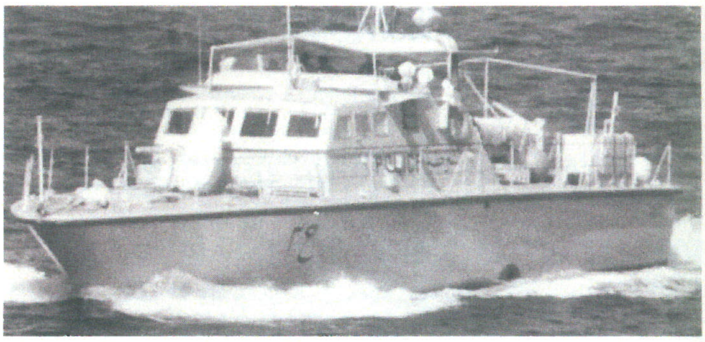
HUCHUAN (Chinese colours) *1993* / 0080798

2 VOSPER THORNYCROFT 75 ft TYPE (COASTAL PATROL CRAFT) (PB)

Displacement, tons: 70 full load
Dimensions, feet (metres): 75 × 19.5 × 8 *(22.9 × 6 × 2.4)*
Main machinery: 2 Caterpillar D 348 diesels: 1,450 hp *(1.08 MW)* sustained; 2 shafts
Speed, knots: 24.5. **Range, miles:** 800 at 20 kt
Complement: 11
Guns: 2 Oerlikon 20 mm GAM-BO1.
Radars: Surface search: Furuno; I-band.

Comment: First pair delivered 6 July 1973, second pair 1974. Used for anti-smuggling patrols off Zanzibar. Two still operational.

UPDATED



VOSPER 75 ft (Omani colours) *1984, N Overington*

AUXILIARIES

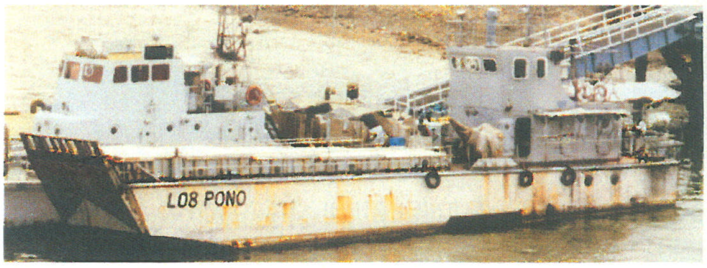
2 YUCH'IN (TYPE 069) CLASS (LCU)

PONO L 08 **KIBUA** L 09

Displacement, tons: 85 full load
Dimensions, feet (metres): 81.2 × 17.1 × 4.3 *(24.8 × 5.2 × 1.3)*
Main machinery: 2 diesels; 600 hp(m) *(441 kW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 450 at 11.5 kt
Complement: 12
Military lift: 46 tons
Guns: 4—14.5 mm (2 twin) MGs.
Radars: Navigation: Fuji; I-band.

Comment: Transferred from China in 1995 probably to replace the Police Yuchai transport craft. Based at Dar-es-Salaam. *Pono* reported to be operational.

VERIFIED



PONO *1/2001* / 0109946

Thailand

Country Overview

The Kingdom of Thailand (formerly Siam) is a constitutional monarchy in South East Asia. With an area of 198,114 square miles, it is bordered to the west by Burma, to the east by Laos and Cambodia and to the south by Malaysia. It has a 1,739 n mile coastline with the Gulf of Thailand and with the Andaman Sea. The capital, largest city and principal port (which also serves neighbouring Laos) is Bangkok. Territorial seas (12 n miles). An EEZ (200 n miles) is claimed and the limits have been partly defined by boundary agreements.

Headquarters Appointments

Commander-in-Chief of the Navy:
Admiral Chumpol Pachusanon
Deputy Commander-in-Chief:
Admiral Yongyudth Nopakun
Assistant Commander-in-Chief:
Admiral Sampop Amrapala
Chief of Staff:
Admiral Satirapan Keyanon
Deputy Chief of Staff:
Vice Admiral Yongyot Huangnikorn

Senior Appointments

Commander-in-Chief, Fleet:
Admiral Vichai Yuwanangoon
Deputy Commander-in-Chief, Fleet:
Vice Admiral Somjai Watanayotin
Chief of Staff, Fleet:
Vice Admiral Nakorn Arunyanak

Diplomatic Representation

Naval Attaché in London:
Captain P Rujites
Naval Attaché in Washington:
Captain Cherngchai Chomcherngpat
Naval Attaché in Paris:
Captain Wittanarat Gaiaseni
Naval Attaché in Canberra:
Captain Paradon Puangkeaw
Naval Attaché in Madrid:
Captain Prasan Sukkaset
Naval Attaché in New Delhi:
Captain Pradit Sirikupt

Diplomatic Representation — *continued*

Naval Attaché in Singapore:
Captain Jiamsak Chantarasena
Naval Attaché in Kuala Lumpur:
Captain Chesta Jaipiam
Naval Attaché in Beijing:
Captain Wisan Puntavangoon
Naval Attaché in Rome:
Captain Somprasong Nilsamai

Personnel

(a) 2004: Navy, 74,000 (including 2,000 Naval Air Arm, 11,000 Marines and Coastal Defense Command)
(b) 2 years' national service (28,000 conscripts)

Organisation

First naval area command (Upper Thai Gulf)
Second naval area command (Lower Thai Gulf)
Third naval area command (Andaman Sea)

Bases

Bangkok, Sattahip, Songkhla, Phang-Nga (west coast)

Naval Aviation

First air wing (U-Tapao)
Second air wing (Songkhla)

101 Sqdn	MPA/ASW
102 Sqdn	MPA/ASuW
103 Sqdn	Utility
104 Sqdn	Maritime Strike
105 Sqdn	Matador
201 Sqdn	Central Patrol

202 Bell Helos
203 Sikorsky Helos

Pennant Numbers

Ships over 150 tons displacement which had single digit numbers, had new numbers allocated in 1994-95.

Prefix to Ships' Names

HTMS

Strength of the Fleet

Type	*Active*	*Building (Projected)*
Aircraft Carriers	1	–
Frigates	8	–
Corvettes	7	–
Fast Attack Craft (Missile)	6	–
Fast Attack Craft (Gun)	3	–
Offshore Patrol Craft	8	2
Coastal Patrol Craft	49	–
MCM Support Ship	1	–
Minehunters	4	–
Coastal Minesweepers	2	–
MSBs	12	–
LSTs	6	–
LSMs	1	–
Hovercraft	3	–
Survey Vessels	5	–
Replenishment Ship	1	–
MCMV Depot Ship	1	–
Tankers/Transports	8	–
Training Ships	3	(1)

Coast Defence

Coastal Defence Command was rapidly expanded to the 1992 two Division level after the government charged the RTN with the responsibility of defending the entire Eastern Seaboard. Ships and aircraft are rotated monthly from the Navy. Equipment includes 10 batteries of truck-mounted Exocet MM 40, 155 and 130 mm guns for coastal defence, 76, 40, 37, 20 mm guns and PL-9B SAM for air defence.

Marine Police

Acts as a Coast Guard in inshore waters with some 60 armed patrol craft and another 65 equipped with small arms only.

PENNANT LIST

Aircraft Carriers

911	Chakri Naruebet

Frigates

421	Naresuan
422	Taksin
455	Chao Phraya
456	Bangpakong
457	Kraburi
458	Saiburi
461	Phuttha Yotfa Chulalok
462	Phuttha Loetla Naphalai

Corvettes

431	Tapi
432	Khirirat
441	Rattanakosin
442	Sukothai
531	Khamronsin
532	Thayanchon
533	Longlom

Patrol Forces

311	Prabparapak
312	Hanhak Sattru
313	Suphairin
321	Ratcharit
322	Witthayakhom
323	Udomdet
331	Chon Buri
332	Songkhla
333	Phuket
521	Sattahip
522	Klongyai
523	Takbai
524	Kantang
525	Thepha
526	Taimuang
541	Hua Hin
542	Klaeng
543	Si Racha

Mine Warfare Forces

612	Bangkeo
613	Donchedi
621	Thalang
631	Bang Rachan
632	Nongsarai
633	Lat Ya
634	Tha Din Daeng

Amphibious Forces

712	Chang
713	Pangan
714	Lanta
715	Prathong
721	Sichang
722	Surin
731	Kut
741	Prab
742	Satakut
761	Mataphon
762	Rawi
763	Adang
764	Phetra
765	Kolam
766	Talibong
771	Thong Kaeo
772	Thong Lang
773	Wang Nok
774	Wang Nai
781	Man Nok
782	Man Klang
783	Man Nai

Training Ships

413	Pin Klao
433	Makut Rajakumarn
611	Phosamton

Survey and Research Ships

811	Chanthara
812	Suk

Auxiliaries

821	Suriya
831	Chula
832	Samui
833	Prong
834	Proet
835	Samed
841	Chuang
842	Chik
851	Klueng Badaan
852	Marn Vichai
853	Rin
854	Rang
855	Samaesan
856	Raet
861	Kled Keo
871	Similan

SUBMARINES

Notes: Acquisition of a submarine force remains a high priority but funding difficulties continue to frustrate plans.

AIRCRAFT CARRIERS

1 CHAKRI NARUEBET CLASS (CVM)

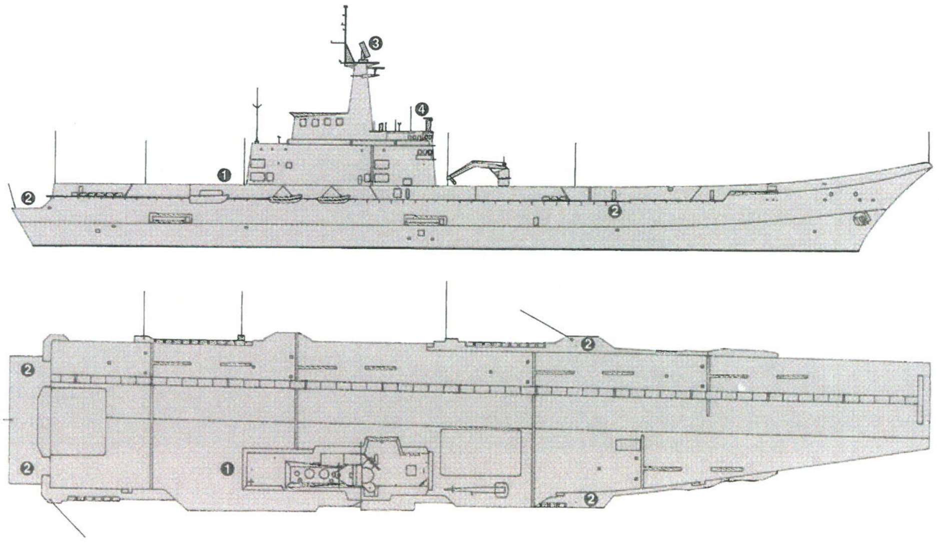
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
CHAKRI NARUEBET	911	Bazán, Ferrol	12 July 1994	20 Jan 1996	27 Mar 1997

Displacement, tons: 11,485 full load
Dimensions, feet (metres): 599.1 oa; 538.4 wl × 100.1 oa; 73.8 wl × 20.3 *(182.6; 164.1 × 30.5; 22.5 × 6.2)*
Flight deck, feet (metres): 572.8 × 90.2 *(174.6 × 27.5)*
Main machinery: CODOG; 2 GE LM 2500 gas turbines; 44,250 hp *(33 MW)* sustained; 2 MTU 16V 1163 TB83 diesels; 11,780 hp(m) *(8.67 MW)*; 2 shafts; LIPS cp props
Speed, knots: 26; 16 (diesels). **Range, miles:** 10,000 at 12 kt
Complement: 455 (62 officers) plus 146 aircrew plus 4 (Royal family)

Missiles: SAM: 1 Mk 41 LCHR 8 cell VLS launcher (fitted for but not with) ❶.
3 Matra Sadral sextuple launchers for Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg.
Guns: 4 Vulcan Phalanx CIWS ❷. 2—30 mm. To be fitted.
Combat data systems: Tritan derivative with Unisys UYK-3 and 20 computers.
Radars: Air search: Hughes SPS-52C ❸; E/F-band.
Surface search: SPS-64 ❹; I-band. To be fitted.
Fire control: to be fitted.
Navigation: Kelvin Hughes; I-band.
Aircraft control: Kelvin Hughes; E/F-band.
Tacan: URN 25.

Fixed-wing aircraft: 6 AV-8S Matador (Harrier).
Helicopters: 6 S-70B-7 Seahawk; Chinook capable.

Programmes: An initial contract for a 7,800 ton vessel with Bremer Vulcan was cancelled on 22 July 1991 and replaced on 27 March 1992 with a government to government contract for a larger ship to be built by Bazán. Fabrication started in October 1993. Sea trials conducted from November 1996 to January 1997 followed by an aviation work-up at Rota from April 1997. The ship arrived in Thailand on 10 August 1997.



CHAKRI NARUEBET *(Scale 1 : 1,500), Ian Sturton* / 0080799

Structure: Similar to Spanish *Príncipe de Asturias*. 12° ski jump and two 20 ton aircraft lifts. Provision made to fit a Mk 41 VLS launcher, a surface search radar, EW systems, a hull mounted sonar and CIWS. Matra Sadral fitted in 2001. Hangar can take up 10 Sea Harrier or Seahawk aircraft.

Operational: Main tasks are SAR co-ordination and EEZ surveillance. Secondary role is air support for all maritime operations. Due to funding shortages, the ship rarely goes to sea and fixed-wing flying has been conducted from shore bases.

UPDATED

CHAKRI NARUEBET *6/2003*, Ships of the World* / 0572644

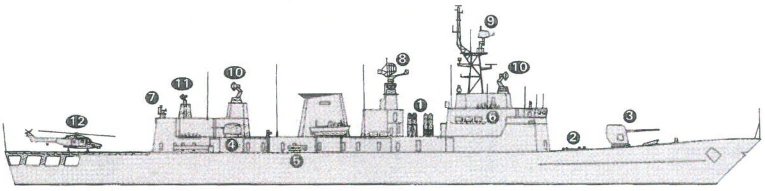
CHAKRI NARUEBET *6/2003*, Ships of the World* / 0572645

FRIGATES

Notes: It was announced on 22 July 2003 that two frigates are to be procured from the UK. These are likely to be based on the design of those acquired by the Royal Malaysian Navy. Subject to successful negotiations with BAE, a contract is expected in 2004.

2 NARESUAN CLASS (TYPE 25T) (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
NARESUAN	421 (ex-621)	Zhonghua SY, Shanghai	Feb 1992	24 July 1993	15 Dec 1994
TAKSIN	422 (ex-622)	Zhonghua SY, Shanghai	Nov 1992	14 May 1994	28 Sep 1995



NARESUAN *(Scale 1 : 1,200), Ian Sturton* / 0543398

NARESUAN *10/2001, Chris Sattler* / 0130150

Displacement, tons: 2,500 standard; 2,980 full load
Dimensions, feet (metres): 393.7 × 42.7 × 12.5 *(120 × 13 × 3.8)*
Main machinery: CODOG; 2 GE LM 2500 gas turbines; 44,250 hp *(33 MW)* sustained; 2 MTU 20 V 1163 TB83 diesels; 11,780 hp(m) *(8.67 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 32. **Range, miles:** 4,000 at 18 kt
Complement: 150

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: Mk 41 LCHR 8 cell VLS launcher ❷ Sea Sparrow; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg.
Guns: 1 FMC 5 in *(127 mm)*/54 Mk 45 Mod 2 ❸; 20 rds/min to 23 km *(12.6 n miles)*; weight of shell 32 kg.
4 China 37 mm/76 (2 twin) H/PJ 76 A ❹; 180 rds/min to 8.5 km *(4.6 n miles)* anti-aircraft; weight of shell 1.42 kg.
Torpedoes: 6—324 mm Mk 32 Mod 5 (2 triple) tubes ❺. Honeywell Mk 46; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 4 China Type 945 GPJ 26-barrelled launchers ❻; chaff and IR.
ESM/ECM: Elettronica Newton Beta EW System; intercept and jammer.
Weapons control: 1 JM-83H Optical Director ❼.
Radars: Air search: Signaal LW08 ❽; D-band.
Surface search: China Type 360 ❾; E/F-band.
Navigation: 2 Raytheon SPS-64(V)5; I-band.
Fire control: 2 Signaal STIR ❿; I/J/K-band (for SSM and 127 mm). After one to be fitted.
China 374 G ⓫ (for 37 mm).
Sonars: China SJD-7; hull-mounted; active search and attack; medium frequency.

Helicopters: 1 Super Lynx ⓬ in due course or 1 Sikorsky S-70B-7 Seahawk.

Programmes: Contract signed 21 September 1989 for construction of two ships by the China State SB Corporation (CSSC) with delivery in 1994. US and European weapon systems were fitted as funds became available. The first ship sailed for Bangkok without most weapon systems in January 1995 with the second following in October 1995.
Structure: Jointly designed by the Royal Thai Navy and China State Shipbuilding Corporation (CSSC). This is a design incorporating much Western machinery and equipment and provides enhanced capabilities by comparison with the four 'Type 053' class. The anti-aircraft guns are Breda 40 mm types with 37 mm ammunition and they are controlled by a Chinese RTN-20 Dardo tracker.
Operational: *Naresuan* acted as one of the escorts for the aircraft carrier during her aviation work-up in Spanish waters in 1997.

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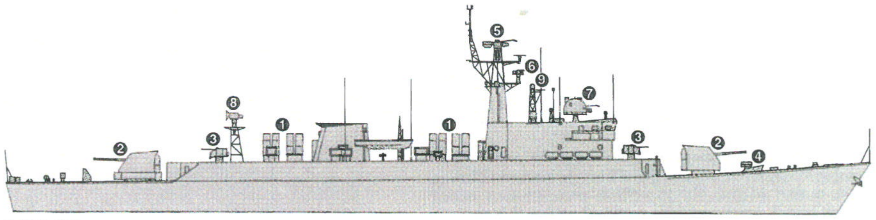
TAKSIN *7/1998, Hachiro Nakai* / 0050234

NARESUAN *10/2002, Hachiro Nakai* / 0530029

4 CHAO PHRAYA CLASS (TYPES 053 HT and 053 HT (H)) (FFG/FFGH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
CHAO PHRAYA	455	Hudong SY, Shanghai	1989	24 June 1990	5 Apr 1991
BANGPAKONG	456	Hudong SY, Shanghai	1989	25 July 1990	20 July 1991
KRABURI	457	Hudong SY, Shanghai	1990	28 Dec 1990	16 Jan 1992
SAIBURI	458	Hudong SY, Shanghai	1990	27 Aug 1991	4 Aug 1992



CHAO PHRAYA

(Scale 1 : 900), Ian Sturton / 0080802

Displacement, tons: 1,676 standard; 1,924 full load
Dimensions, feet (metres): 338.5 × 37.1 × 10.2
(103.2 × 11.3 × 3.1)
Main machinery: 4 MTU 20V 1163 TB83 diesels; 29,440 hp(m) *(21.6 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 30. **Range, miles:** 3,500 at 18 kt
Complement: 168 (22 officers)

Missiles: SSM: 8 Ying Ji (Eagle Strike) (C-801) ❶; active radar/IR homing to 85 km *(45.9 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer. This is the extended range version.
SAM: 1 HQ-61 launcher for PL-9 or Matra Sadral for Mistral to be fitted.
Guns: 2 (457 and 458) or 4 China 100 mm/56 (1 or 2 twin) ❷; 25 rds/min to 22 km *(12 n miles)*; weight of shell 15.9 kg.
8 China 37 mm/76 (4 twin) H/PJ 76 A ❸; 180 rds/min to 8.5 km *(4.6 n miles)* anti-aircraft; weight of shell 1.42 kg.
A/S mortars: 2 RBU 1200 (China Type 86) 5-tubed fixed launchers ❹; range 1,200 m.
Depth charges: 2 BMB racks.
Countermeasures: Decoys: 2 China Type 945 GPJ 26-barrelled chaff launchers.
ESM: China Type 923(1); intercept.
ECM: China Type 981(3); jammer.

Combat data systems: China Type ZKJ-3 or STN Atlas mini COSYS action data automation being fitted.
Radars: Air/surface search: China Type 354 Eye Shield ❺; G-band.
Surface search/fire control: China Type 352C Square Tie ❻; I-band (for SSM).
Fire control: China Type 343 Sun Visor ❼; I-band (for 100 mm).
China Type 341 Rice Lamp ❽; I-band (for 37 mm).
Navigation: Racal Decca 1290 A/D ARPA and Anritsu RA 71CA ❾; I-band.
IFF: Type 651.

Sonars: China Type SJD-5A; hull-mounted; active search and attack; medium frequency.

Helicopters: Platform for 1 Bell 212 (457 and 458) ❿.

Programmes: Contract signed 18 July 1988 for four modified 'Jianghu' class ships to be built by the China State SB Corporation (CSSC).
Modernisation: A mini COSYS system was acquired for two of the class in 1999.
Structure: Thailand would have preferred only the hulls but China insisted on full armament. Two of the ships are the Type III variant with 100 mm guns, fore and aft, and the other two are a variation with a helicopter platform replacing the after 100 mm gun. German communication equipment fitted. The EW fit is Italian designed.
Operational: On arrival in Thailand each ship was docked to make good poor shipbuilding standards and improve damage control capabilities. The ships are mostly used for rotating monthly to the Coast Guard, and for training, although *Kraburi* was part of the escort force for the aircraft carrier in Spanish waters in 1997.

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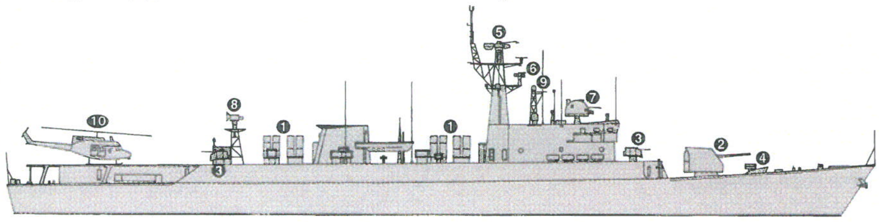
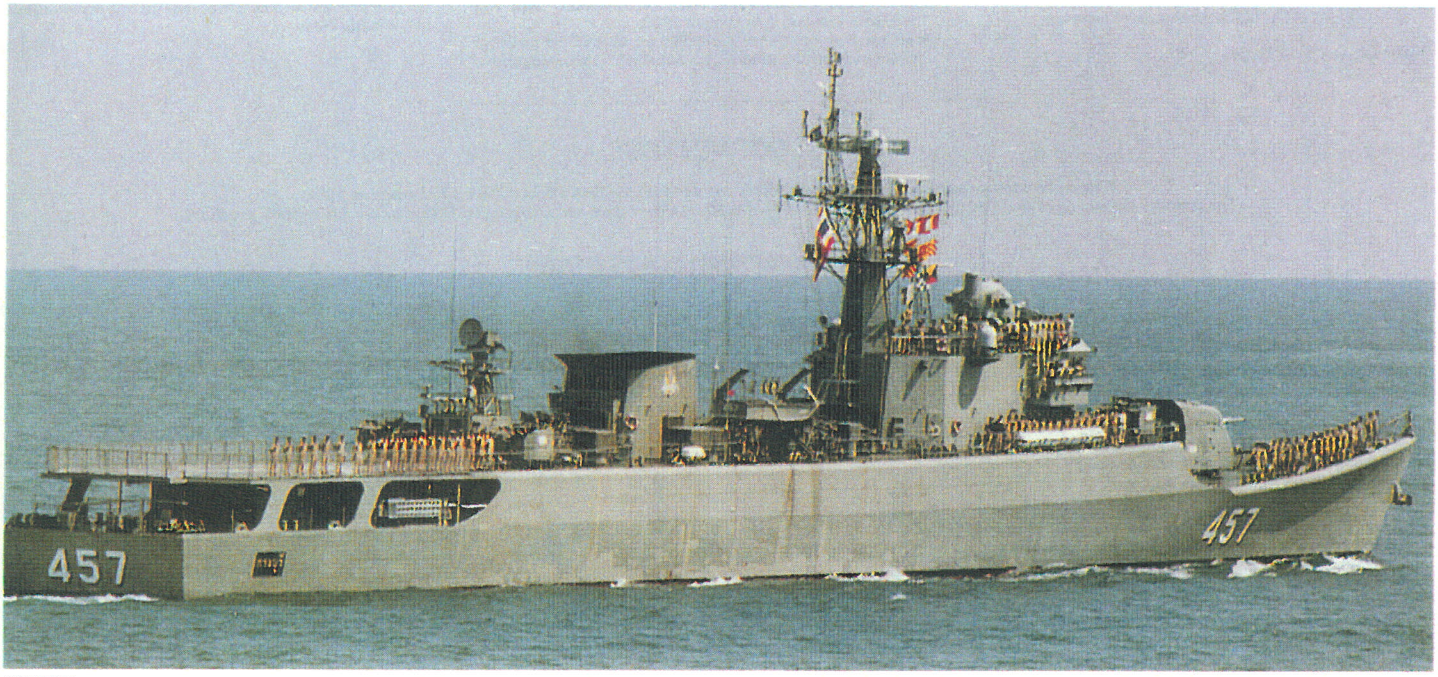


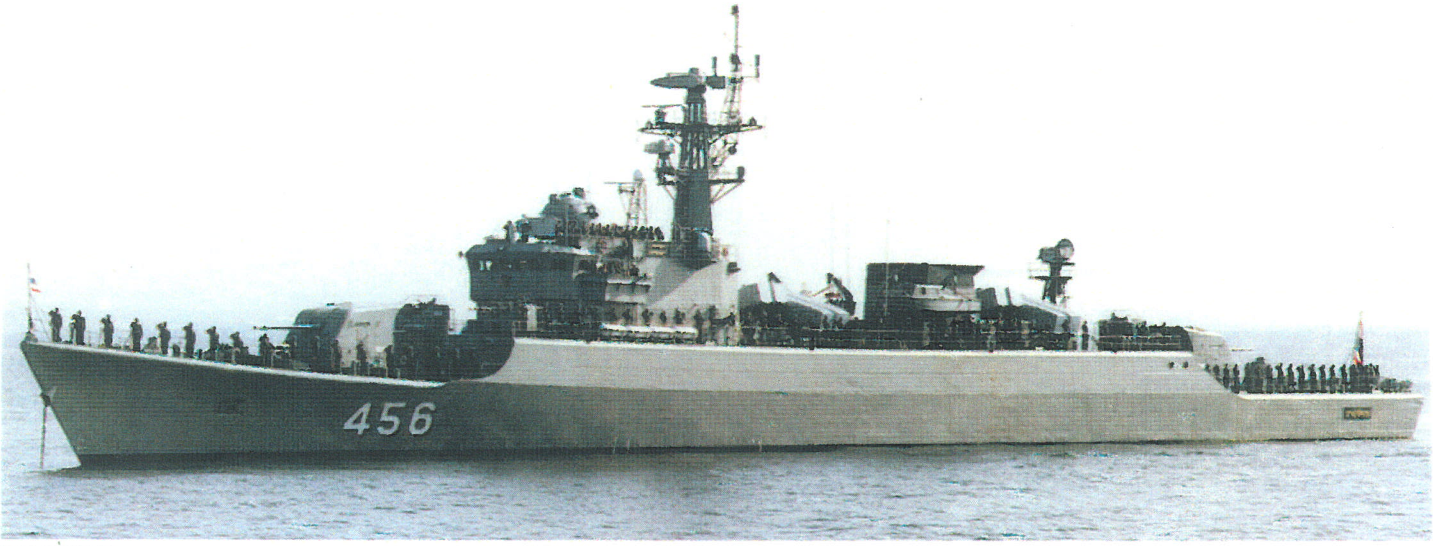
KRABURI

(Scale 1 : 900), Ian Sturton / 0080803



KRABURI

5/1998, Ships of the World / 0050235



BANGPAKONG

10/2002, John Mortimer / 0529998

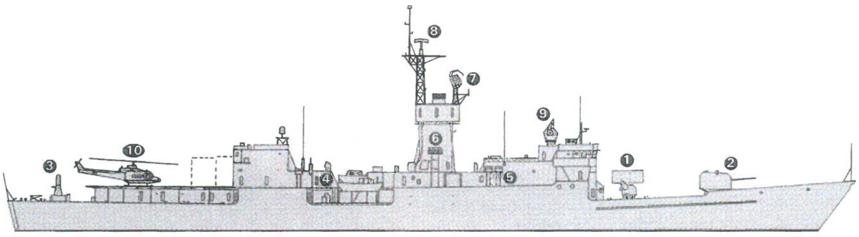
2 KNOX CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
PHUTTHA YOTFA CHULALOK (ex-*Truett*)	461 (ex-FF 1095)	Avondale Shipyards	27 Apr 1972	3 Feb 1973	1 June 1974
PHUTTHA LOETLA NAPHALAI (ex-*Ouellet*)	462 (ex-FF 1077)	Avondale Shipyards	15 Jan 1969	17 Jan 1970	12 Dec 1970

Displacement, tons: 3,011 standard; 4,260 full load
Dimensions, feet (metres): 439.6 × 46.8 × 15; 24.8 (sonar) *(134 × 14.3 × 4.6; 7.8)*
Main machinery: 2 Combustion Engineering/Babcock & Wilcox boilers; 1,200 psi *(84.4 kg/cm²)*; 950°F *(510°C)*; 1 turbine; 35,000 hp *(26 MW)*; 1 shaft
Speed, knots: 27. **Range, miles:** 4,000 at 22 kt on 1 boiler
Complement: 288 (17 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
A/S: Honeywell ASROC Mk 16 octuple launcher with reload system (has 2 starboard cells modified to fire Harpoon) ❶; inertial guidance to 1.6-10 km *(1-5.4 n miles)*; payload Mk 46.
Guns: 1 FMC 5 in *(127 mm)*/54 Mk 42 Mod 9 ❷; 20-40 rds/min to 24 km *(13 n miles)* anti-surface; 14 km *(7.7 n miles)* anti-aircraft; weight of shell 32 kg.
1 General Electric/General Dynamics 20 mm/76 6-barrelled Mk 15 Vulcan Phalanx ❸; 3,000 rds/min combined to 1.5 km.
Torpedoes: 4—324 mm Mk 32 (2 twin) fixed tubes ❹. 22 Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled fixed Mk 36 ❺; IR flares and chaff to 4 km *(2.2 n miles)*. T Mk-6 Fanfare/SLQ-25 Nixie; torpedo decoy. Prairie Masker hull and blade rate noise suppression.
ESM/ECM: SLQ-32(V)2 ❻; radar warning. Sidekick modification adds jammer and deception system.
Combat data systems: Link 14 receive only.
Weapons control: SWG-1A Harpoon LCS. Mk 68 GFCS. Mk 114 ASW FCS. Mk 1 target designation system. MMS target acquisition sight (for mines, small craft and low-flying aircraft).
Radars: Air search: Lockheed SPS-40B ❼; B-band; range 320 km *(175 n miles)*.
Surface search: Raytheon SPS-10 or Norden SPS-67 ❽; G-band.
Navigation: Marconi LN66; I-band.
Fire control: Western Electric SPG-53A/D/F ❾; I/J-band.
Tacan: SRN 15. IFF: UPX-12.
Sonars: EDO/General Electric SQS-26CX; bow-mounted; active search and attack; medium frequency.
EDO SQR-18(V) TACTASS; passive; low frequency.

Helicopters: 1 Bell 212 ❿.



PHUTTHA YOTFA CHULALOK *(Scale 1 : 1,200), Ian Sturton* / 0543397

PHUTTHA LOETLA NAPHALAI *1/2001, Thai Navy League* / 0105841

Programmes: The first ship transferred on five year lease from the USA on 30 July 1994. This was renewed by grant in 1999. The second transferred on lease 27 November 1996 and arrived in Thailand in November 1998.
Structure: Four Mk 32 torpedo tubes are fixed in the midships structure, two to a side, angled out at 45°. The arrangement provides improved loading capability over exposed triple Mk 32 torpedo tubes. A 4,000 lb lightweight anchor is fitted on the port side and an 8,000 lb anchor fits into the after section of the sonar dome.

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CORVETTES

Notes: The contract for two Offshore Patrol Vessels was signed with China Shipbuilding on 20 December 2002. The ships are likely to be of about 95 m and 1,500 tons and to be fitted with a flight deck and medium gun. Deliveries are due in 2005 and 2006.

2 RATTANAKOSIN CLASS (FSGM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
RATTANAKOSIN	441 (ex-1)	Tacoma Boatbuilders, WA	6 Feb 1984	11 Mar 1986	26 Sep 1986
SUKHOTHAI	442 (ex-2)	Tacoma Boatbuilders, WA	26 Mar 1984	20 July 1986	10 June 1987

Displacement, tons: 960 full load
Dimensions, feet (metres): 252 × 31.5 × 8 *(76.8 × 9.6 × 2.4)*
Main machinery: 2 MTU 20V 1163 TB83 diesels; 14,730 hp(m) *(10.83 MW)* sustained; 2 shafts; Kamewa cp props
Speed, knots: 26. **Range, miles:** 3,000 at 16 kt
Complement: 87 (15 officers) plus Flag Staff

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg (84A) or 258 kg (84B/C).
SAM: Selenia Elsag Albatros octuple launcher ❷; 24 Aspide; semi-active radar homing to 13 km *(7 n miles)* at 2.5 Mach; height envelope 15-5,000 m *(49.2-16,405 ft)*; warhead 30 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 ❸; 60 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Breda 40 mm/70 (twin) ❹; 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
2 Rheinmetall 20 mm ❺.
Torpedoes: 6—324 mm US Mk 32 (2 triple) tubes ❻. MUSL Stingray; active/passive homing to 11 km *(5.9 n miles)* at 45 kt; warhead 35 kg (shaped charge); depth to 750 m *(2,460 ft)*.
Countermeasures: Decoys: CSEE Dagaie 6- or 10-tubed trainable; IR flares and chaff; H- to J-band.
ESM: Elettronica; intercept.
Weapons control: Signaal Sewaco TH action data automation. Lirod 8 optronic director ❼.
Radars: Air/surface search: Signaal DA05 ❽; E/F-band; range 137 km *(75 n miles)* for 2 m² target.
Surface search: Signaal ZW06 ❾; I-band.
Navigation: Decca 1226; I-band.
Fire control: Signaal WM25/41 ❿; I/J-band; range 46 km *(25 n miles)*.
Sonars: Atlas Elektronik DSQS-21C; hull-mounted; active search and attack; medium frequency.

Programmes: Contract signed with Tacoma on 9 May 1983. Intentions to build a third were overtaken by the Vosper corvettes.
Structure: There are some similarities with the missile corvettes built for Saudi Arabia five years earlier. Space for Phalanx aft of the Harpoon launchers, but there are no plans to fit.

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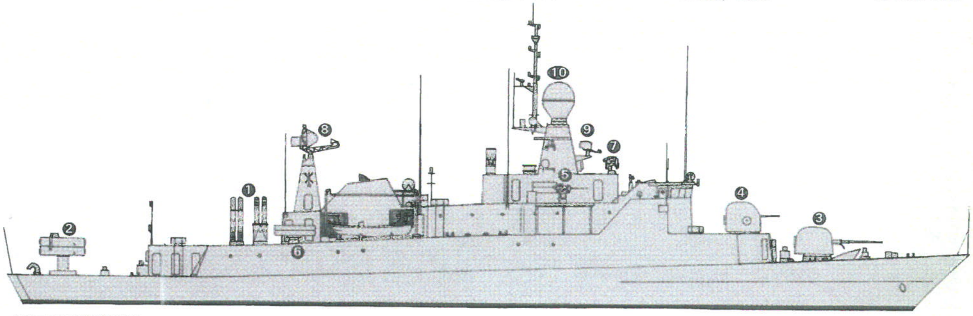


RATTANAKOSIN *(Scale 1 : 600), Ian Sturton*

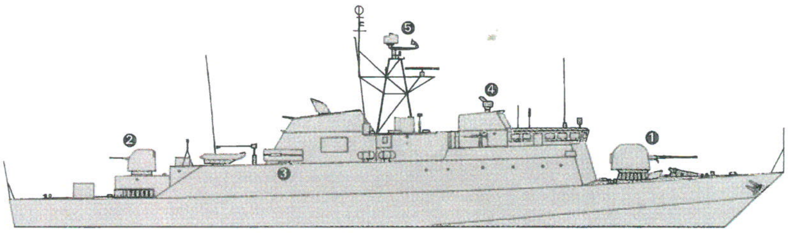
SUKHOTHAI
6/2001, Royal Thai Navy / 0130170

3 KHAMRONSIN CLASS (FS)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
KHAMRONSIN	531 (ex-1)	Ital Thai Marine, Bangkok	15 Mar 1988	15 Aug 1989	29 July 1992
THAYANCHON	532 (ex-2)	Ital Thai Marine, Bangkok	20 Apr 1988	7 Dec 1989	5 Sep 1992
LONGLOM	533 (ex-3)	Bangkok Naval Dockyard	15 Mar 1988	8 Aug 1989	2 Oct 1992

Displacement, tons: 630 full load
Dimensions, feet (metres): 203.. oa; 186 wl × 26.9 × 8.2 *(62; 56.7 × 8.2 × 2.5)*
Main machinery: 2 MTU 12V 1163 TB93; 9,980 hp(m) *(7.34 MW)* sustained; 2 Kamewa cp props
Speed, knots: 25. **Range, miles:** 2,500 at 15 kt
Complement: 57 (6 officers)

Guns: 1 OTO Melara 76 mm/62 Mod 7 ❶; 60 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Breda 30 mm/70 (twin) ❷; 800 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.37 kg.
2—12.7 mm MGs.
Torpedoes: 6 Plessey PMW 49A (2 triple) launchers ❸; MUSL Stingray; active/passive homing to 11 km *(5.9 n miles)* at 45 kt; warhead 35 kg shaped charge.
Combat data systems: Plessey Nautis P action data automation.
Weapons control: British Aerospace Sea Archer 1A Mod 2 optronic GFCS ❹.
Radars: Air/surface search: Plessey AWS 4 ❺; E/F-band.
Navigation: Racal Decca 1226; I-band.



KHAMRONSIN *(Scale 1 : 600), Ian Sturton* / 0572649

Sonars: Atlas Elektronik DSQS-21C; hull-mounted; active search and attack; medium frequency.

Programmes: Contract signed on 29 September 1987 with Ital Thai Marine of Bangkok for the construction of two ASW corvettes and for technical assistance with a third to be built in Bangkok Naval Dockyard. A fourth of the class with a different superstructure and less armament was ordered by the Police in September 1989.
Structure: The vessels are based on a Vosper Thornycroft 'Province' class 56 m design stretched by increasing the frame spacing along the whole length of the hull. Depth charge racks and mine rails may be added.

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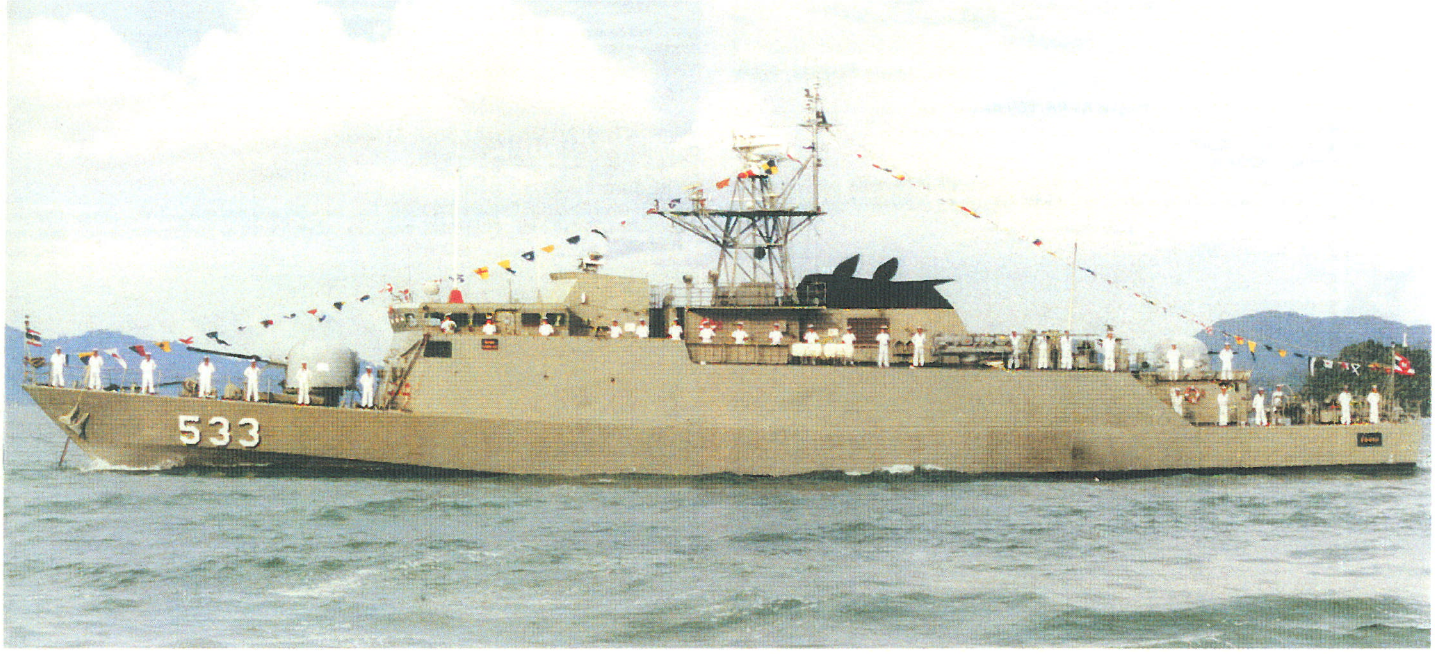

LONGLOM *9/2003*, Hartmut Ehlers* / 0572641

2 TAPI (PF 103) CLASS (FS)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
TAPI	431 (ex-5)	American SB Co, Toledo, OH	1 July 1970	17 Oct 1970	19 Nov 1971
KHIRIRAT	432 (ex-6)	Norfolk SB & DD Co	18 Feb 1972	2 June 1973	10 Aug 1974

Displacement, tons: 885 standard; 1,172 full load
Dimensions, feet (metres): 275 × 33 × 10; 14.1 (sonar) *(83.8 × 10 × 3; 4.3)*
Main machinery: 2 Fairbanks-Morse 38TD8-1/8-9 diesels; 5,250 hp *(3.9 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 2,400 at 18 kt
Complement: 135 (15 officers)

Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact ❶; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg.
1 Bofors 40 mm/70 ❷; 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
2 Oerlikon 20 mm ❸. 2—12.7 mm MGs.
Torpedoes: 6—324 mm US Mk 32 (2 triple) tubes ❹. Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Depth charges: 1 rack.
Combat data systems: Signaal Sewaco TH.
Radars: Air/surface search: Signaal LW04 ❺; D-band; range 137 km *(75 n miles)* for 2 m² target.
Surface search: Raytheon SPS-53E ❻; I-band.
Fire control: Signaal WM22-61 ❼; I/J-band; range 46 km *(25 n miles)*.
IFF: UPX-23.
Sonars: Atlas Elektronik DSQS-21C; hull-mounted; active search and attack; medium frequency.

Programmes: *Tapi* was ordered on 27 June 1969. *Khirirat* was ordered on 25 June 1971.
Modernisation: *Tapi* completed 1983 and *Khirirat* in 1987. This included new gunnery and radars and a slight heightening of the funnel. Further modernisation in 1988—89 mainly to external and internal communications.
Structure: Of similar design to the Iranian ships of the 'Bayandor' class.
Operational: Used for EEZ patrols.

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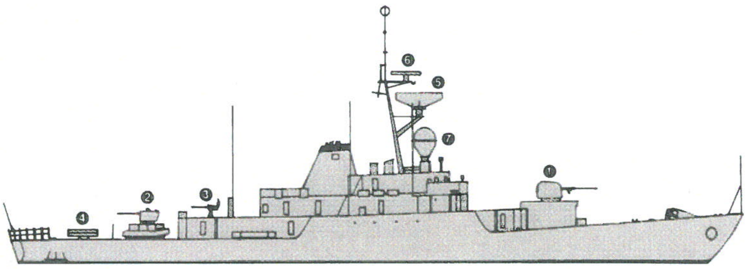
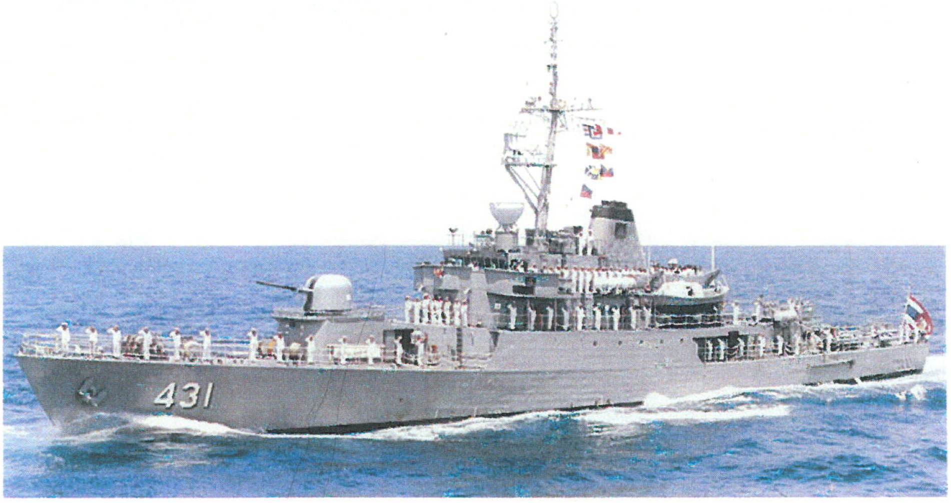


TAPI *(Scale 1 : 900), Ian Sturton*



TAPI
6/2001, Royal Thai Navy / 0130171

SHIPBORNE AIRCRAFT

Numbers/Type: 2 GKN-Westland Super Lynx 300.
Operational speed: 125 kt *(231 km/h).*
Service ceiling: 12,000 ft *(3,660 m).*
Range: 340 n miles *(630 km).*
Role/Weapon systems: Two helicopters ordered 7 August 2001 for ASW, ASV and surveillance roles. Delivered expected in 2004.

VERIFIED

SUPER LYNX 300 DEMONSTRATOR *6/2001, Agusta-Westland* / 0095707

Numbers/Type: 7/2 BAe/McDonnell Douglas AV-8A/TAV-8A (Harrier).
Operational speed: 640 kt *(1,186 km/h).*
Service ceiling: 51,200 ft *(15,600 m).*
Range: 800 n miles *(1,480 km).*
Role/Weapon systems: AV-8S supplied via USA to Spain and transferred in 1996. Sensors: None. Weapons: Strike; two 30 mm Aden cannon, two AIM-9 Sidewinder or 20 mm/127 mm rockets and 'iron' bombs.

VERIFIED

HARRIER *1/2001, Thai Navy League* / 0130153

Numbers/Type: 6 Sikorsky S-70B7 Seahawk.
Operational speed: 135 kt *(250 km/h).*
Service ceiling: 10,000 ft *(3,050 m).*
Range: 600 n miles *(1,110 km).*
Role/Weapon systems: Multimission helicopters delivered by June 1997. Plans to acquire ASW equipment have been abandoned. Sensors: Telephonics APS-143(V)3 radar; ASN 150 databus; provision for sonobuoys and dipping sonar; ALR 606(V)2 ESM. Weapons: Provision for ASM and MUSL Stingray torpedoes.

VERIFIED

SEAHAWK *8/1997, Thai Navy League* / 0019260

Numbers/Type: 7 Bell 212.
Operational speed: 100 kt *(185 km/h).*
Service ceiling: 13,200 ft *(4,025 m).*
Range: 200 n miles *(370 km).*
Role/Weapon systems: Commando assault and general support. At least two transferred from Army. May be sold to help pay for new shipborne helicopter. Mostly based ashore but operate from 'Normed' class and frigates. Weapons: Pintle-mounted M60 machine guns

UPDATED

BELL 212 *2000, Thai Navy League* / 0105842

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: There are also five Cessna Bird Dog light reconnaissance aircraft, 9 Cessna Skywagon and two UH-1H helicopters.

Numbers/Type: 4 Sikorsky S-76B.
Operational speed: 145 kt *(269 km/h).*
Service ceiling: 6,500 ft *(1,980 m).*
Range: 357 n miles *(661 km).*
Role/Weapon systems: Six originally acquired in 1996 for maritime surveillance and utility purposes. Sensors: Weather radar. Weapons: Unarmed. ***VERIFIED***

S-76 *8/1996, Royal Thai Navy* / 0050241

Numbers/Type: 2/1 Lockheed P-3T/UP-3T Orion.
Operational speed: 411 kt *(761 km/h).*
Service ceiling: 28,300 ft *(8,625 m).*
Range: 4,000 n miles *(7,410 km).*
Role/Weapon systems: Delivered in 1996. Two for ASW and one utility. Two more are required. Sensors: APS-115 radar, ECM/ESM. Weapons: ASW; Mk 46 or Stingray torpedoes. ASV; four Harpoon.

VERIFIED

ORION *8/1997, Royal Thai Navy* / 0019261

Numbers/Type: 14/4 A-7E/TA-7E Corsair II.
Operational speed: 600 kt *(1,112 km/h).*
Service ceiling: 50,000 ft *(15,240 m).*
Range: 2,000 n miles *(3,705 km).*
Role/Weapon systems: Delivered in 1996-97 from the US. Not all are operational. Weapons: AIM-9L Sidewinder; 1—20 mm cannon.

VERIFIED

ROYAL THAI
NAVY

CORSAIR II *8/1996, Royal Thai Navy* / 0053451

Numbers/Type: 3/2 Fokker F27 Maritime 200ME/400M.
Operational speed: 250 kt *(463 km/h).*
Service ceiling: 25,000 ft *(7,620 m).*
Range: 2,700 n miles *(5,000 km).*
Role/Weapon systems: Increased coastal surveillance and response is provided, including ASW and ASV action by 200ME. 400M is for transport. Sensors: APS-504 search radar, Bendix weather radar, ESM and MAD equipment. Weapons: ASW; four Mk 46 or Stingray torpedoes or depth bombs or mines. ASV; two Harpoon ASM.

VERIFIED

FOKKER 400 *1994, Royal Thai Navy* / 0053452

Numbers/Type: 5 GAF N24A Searchmaster B (Nomad).
Operational speed: 168 kt *(311 km/h)*.
Service ceiling: 21,000 ft *(6,400 m)*.
Range: 730 n miles *(1,352 km)*.
Role/Weapon systems: Short-range MR for EEZ protection and anti-smuggling operations. Sensors: Search radar, cameras. Weapons: Unarmed.

UPDATED

NOMAD (US colours) *2/2004*, ASTA /* 0010107

Numbers/Type: 6 Dornier 228.
Operational speed: 200 kt *(370 km/h)*.
Service ceiling: 28,000 ft *(8,535 m)*.
Range: 940 n miles *(1,740 km)*.
Role/Weapon systems: Coastal surveillance and EEZ protection. Three acquired in 1991, three more in 1996. Sensors: APS-128/504 search radar.

VERIFIED

ROYAL THAI NAVY
122

DORNIER 228 *6/1996, Royal Thai Navy /* 0019262

Numbers/Type: 2 Canadair CL-215.
Operational speed: 206 kt *(382 km/h)*.
Service ceiling: 10,000 ft *(3,050 m)*.
Range: 1,125 n miles *(2,085 km)*.
Role/Weapon systems: Used for general purpose transport, SAR and fire-fighting.

VERIFIED

CL-215 *1993, Royal Thai Navy /* 0053453

PATROL FORCES

3 HUA HIN CLASS (PSO)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HUA HIN	541	Asimar, Samut Prakarn	Mar 1997	3 Mar 1999	25 Mar 2000
KLAENG	542	Asimar, Samut Prakarn	May 1997	19 Apr 1999	17 Jan 2001
SI RACHA	543	Bangkok Naval Dockyard	Dec 1997	6 Sep 1999	17 Jan 2001

Displacement, tons: 645 full load
Dimensions, feet (metres): 203.4 × 29.2 × 8.9 *(62 × 8.9 × 2.7)*

Main machinery: 3 Paxman 12VP 185 diesels; 10,372 hp(m) *(7.63 MW)* sustained; 3 shafts; 1 LIPS cp prop (centreline)
Speed, knots: 25. **Range, miles:** 2,500 at 15 kt

Complement: 45 (11 officers)

Guns: 1 Otobreda 3 in *(76 mm)*/50 ❶; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
1 Bofors 40 mm/60 ❷; 2 Oerlikon 20 mm GAM-BO1 ❸.
2—12.7 mm MGs.
Weapons control: Optronic director ❹.
Radars: Surface search: Sperry Rascar ❺; E/F-band.
Navigation: Sperry Apar; I-band.

Programmes: Ordered in September 1996 from Asian Marine. Delayed and reported cancelled by the Thai Navy in late 1997 but, despite being beset by building delays, all three ships had entered service by 2001.
Structure: Derived from the Khamronsin design.
Operational: Armament has not yet been fitted.

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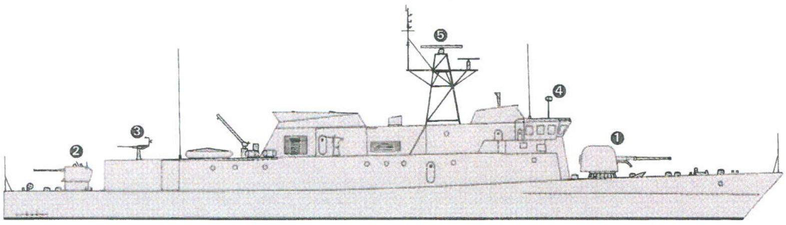
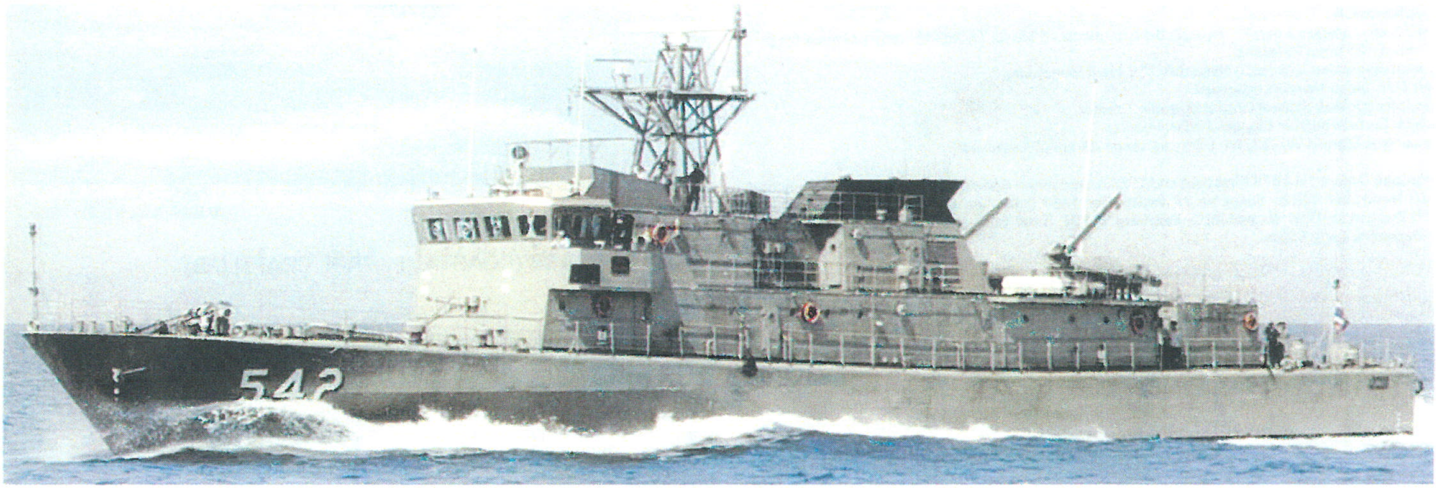


HUA HIN *(Scale 1 : 600), Ian Sturton /* 0530056



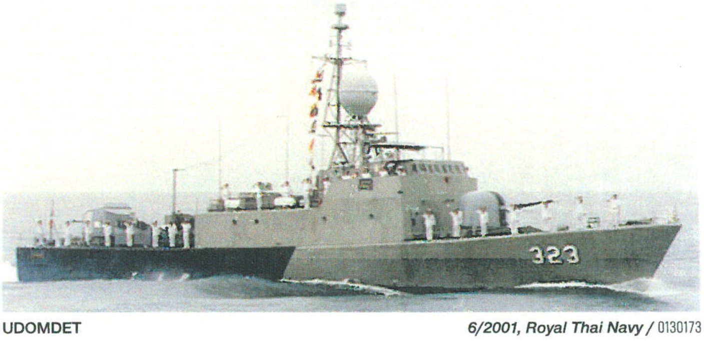
KLAENG *6/2001, Royal Thai Navy /* 0130174

3 RATCHARIT CLASS (FAST ATTACK CRAFT—MISSILE) (PGGF)

Name	*No*	*Builders*	*Commissioned*
RATCHARIT	321 (ex-4)	CN Breda (Venezia)	10 Aug 1979
WITTHAYAKHOM	322 (ex-5)	CN Breda (Venezia)	12 Nov 1979
UDOMDET	323 (ex-6)	CN Breda (Venezia)	21 Feb 1980

Displacement, tons: 235 standard; 270 full load
Dimensions, feet (metres): 163.4 × 24.6 × 7.5 *(49.8 × 7.5 × 2.3)*
Main machinery: 3 MTU MD 20V 538 TB91 diesels; 11,520 hp(m) *(8.47 MW)* sustained; 3 shafts; Kamewa cp props
Speed, knots: 37. **Range, miles:** 2,000 at 15 kt
Complement: 45 (7 officers)

Missiles: SSM: 4 Aerospatiale MM 38 Exocet; inertial cruise; active radar homing to 42 km *(23 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg.
1 Bofors 40 mm/70; 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
2—12.7 mm MGs.
Countermeasures: ESM: Racal RDL-2; intercept.
Radars: Surface search: Decca; I-band.
Fire control: Signaal WM25; I/J-band; range 46 km *(25 n miles)*.



UDOMDET *6/2001, Royal Thai Navy /* 0130173

Programmes: Ordered June 1976. *Ratcharit* launched 30 July 1978, *Witthayakhom* 2 September 1978 and *Udomdet* 28 September 1978.
Structure: Standard Breda BMB 230 design.

UPDATED

3 PRABPARAPAK CLASS (FAST ATTACK CRAFT—MISSILE) (PTFG)

Name	*No*	*Builders*	*Commissioned*
PRABPARAPAK	311 (ex-1)	Singapore SBEC	28 July 1976
HANHAK SATTRU	312 (ex-2)	Singapore SBEC	6 Nov 1976
SUPHAIRIN	313 (ex-3)	Singapore SBEC	1 Feb 1977

Displacement, tons: 224 standard; 268 full load
Dimensions, feet (metres): 149 × 24.3 × 7.5 *(45.4 × 7.4 × 2.3)*
Main machinery: 4 MTU 16V 538 TB92 diesels; 13,640 hp(m) *(10 MW)* sustained; 4 shafts
Speed, knots: 40. **Range, miles:** 2,000 at 15 kt; 750 at 37 kt
Complement: 41 (5 officers)

Missiles: SSM: 5 IAI Gabriel I (1 triple, 2 single) launchers; radar or optical guidance; semi-active radar homing to 20 km *(10.8 n miles)* at 0.7 Mach; warhead 75 kg.
Guns: 1 Bofors 57 mm/70; 200 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg. 8 rocket illuminant launchers on either side of 57 mm gun.
1 Bofors 40 mm/70; 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 2.4 kg.
Countermeasures: ESM: Racal RDL-2; intercept.
Radars: Surface search: Kelvin Hughes Type 17; I-band.
Fire control: Signaal WM28/5 series; I/J-band.

Programmes: Ordered June 1973. Built under licence from Lürssen. Launch dates-*Prabparapak* 29 July 1975, *Hanhak Sattru* 28 October 1975, *Suphairin* 20 February 1976.
Modernisation: There are plans to replace Gabriel possibly by RBS 15.
Structure: Same design as Lürssen standard 45 m class built for Singapore. Normally only three Gabriel SSM are carried.

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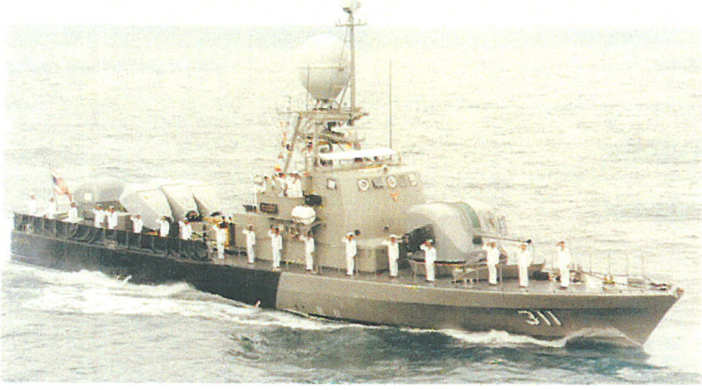

PRABPARAPAK *6/2001, Royal Thai Navy* / 0130172

3 CHON BURI CLASS (FAST ATTACK CRAFT—GUN) (PG)

Name	*No*	*Builders*	*Commissioned*
CHON BURI	331 (ex-1)	CN Breda (Venezia) Mestre	22 Feb 1983
SONGKHLA	332 (ex-2)	CN Breda (Venezia) Mestre	15 July 1983
PHUKET	333 (ex-3)	CN Breda (Venezia) Mestre	13 Jan 1984

Displacement, tons: 450 full load
Dimensions, feet (metres): 198 × 29 × 15 *(60.4 × 8.8 × 4.5)*
Main machinery: 3 MTU 20V 538 TB92 diesels; 12,795 hp(m) *(9.4 MW)* sustained; 3 shafts; cp props
Speed, knots: 30. **Range, miles:** 2,500 at 18 kt; 900 at 30 kt
Complement: 41 (6 officers)
Guns: 2 OTO Melara 3 in *(76 mm)*/62; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Breda 40 mm/70 (twin).
Countermeasures: Decoys: 4 Hycor Mk 135 chaff launchers.
ESM: Elettronica Newton; intercept.
Weapons control: Signaal Lirod 8 optronic director.
Radars: Surface search: Signaal ZW06; I-band.
Fire control: Signaal WM22/61; I/J-band; range 46 km *(25 n miles)*.

Comment: Ordered in 1979 (first pair) and 1981. Laid down—*Chon Buri* 15 August 1981 (launched 29 November 1982), *Songkhla* 15 September 1981 (launched 6 September 1982), *Phuket* 15 December 1981 (launched 3 February 1983). Steel hulls, alloy superstructure. Can be adapted to carry SSMs.

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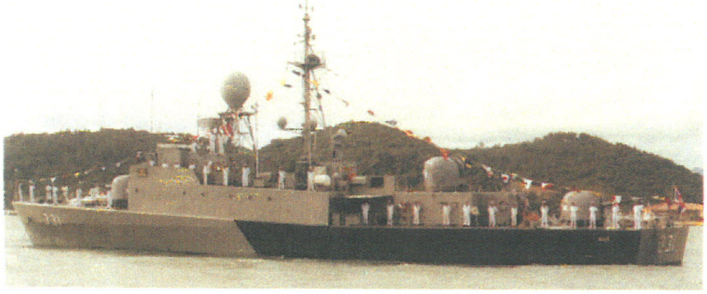
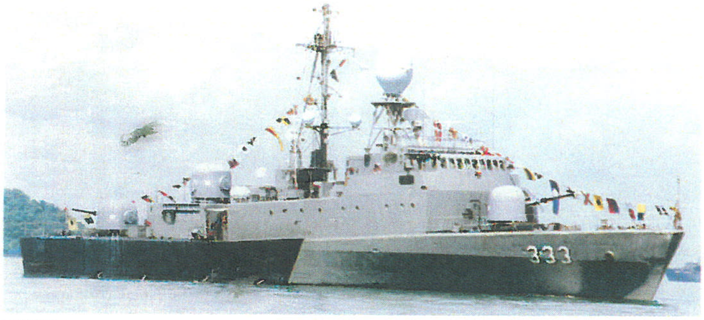


CHON BURI *9/2003*, Hartmut Ehlers* / 0572642



PHUKET *10/2001, Chris Sattler* / 0130157

6 SATTAHIP (PSMM Mk 5) CLASS (LARGE PATROL CRAFT) (PG)

Name	*No*	*Builders*	*Commissioned*
SATTAHIP	521 (ex-4)	Ital Thai (Samutprakarn) Ltd	16 Sep 1983
KLONGYAI	522 (ex-5)	Ital Thai (Samutprakarn) Ltd	7 May 1984
TAKBAI	523 (ex-6)	Ital Thai (Samutprakarn) Ltd	18 July 1984
KANTANG	524 (ex-7)	Ital Thai (Samutprakarn) Ltd	14 Oct 1985
THEPHA	525 (ex-8)	Ital Thai (Samutprakarn) Ltd	17 Apr 1986
TAIMUANG	526 (ex-9)	Ital Thai (Samutprakarn) Ltd	17 Apr 1986

Displacement, tons: 270 standard; 300 full load
Dimensions, feet (metres): 164.5 × 23.9 × 5.9 *(50.1 × 7.3 × 1.8)*
Main machinery: 2 MTU 16V 538 TB92 diesels; 6,820 hp(m) *(5 MW)* sustained; 2 shafts
Speed, knots: 22. **Range, miles:** 2,500 at 15 kt
Complement: 56
Guns: 1 OTO Melara 3 in *(76 mm)*/62 (in 521-523). 1 USN 3 in *(76 mm)*/50 Mk 26 (in 524-526).
1 Bofors 40 mm/70 or 40 mm/60. 2 Oerlikon 20 mm GAM-BO1. 2—12.7 mm MGs.
Weapons control: NA 18 optronic director (in 521-523).
Radars: Surface search: Decca; I-band.

Comment: First four ordered 9 September 1981, *Thepha* on 27 December 1983 and *Taimuang* on 31 August 1984.

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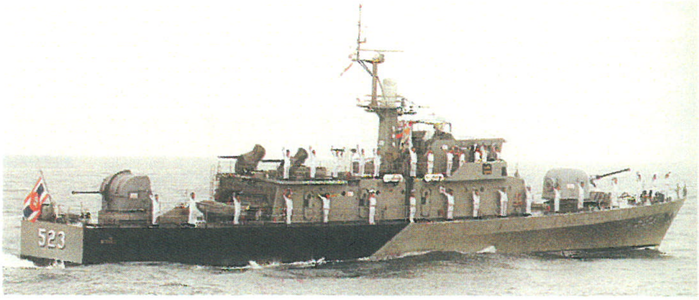

TAKBAI *10/1999, Royal Thai Navy* / 0080815

3 T 81 CLASS (COASTAL PATROL CRAFT) (PB)

T 81 **T 82** **T 83**

Displacement, tons: 120 full load
Dimensions, feet (metres): 98.8 × 20.7 × 5.6 *(30.1 × 6.3 × 1.7)*
Main machinery: 2 MTU 16V 2000 TE90 diesels; 3,600 hp(m) *(2.56 MW)*; 2 shafts
Speed, knots: 25. **Range, miles:** 1,300 at 15 kt
Complement: 28 (3 officers)
Guns: 1 Bofors 40 mm/70. 1 Oerlikon 20 mm. 2—12.7 mm MGs.
Radars: Surface search: Sperry SM 5000; I-band.

Comment: Ordered in October 1996 from ASC Silkline in Pranburi. First one commissioned 5 August 1999, second 9 December 1999 and the third in 2000. Plans for seven more have been shelved.

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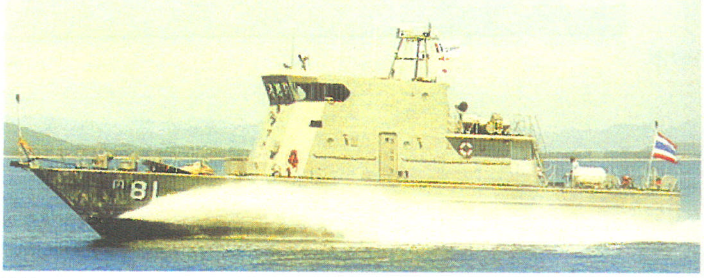

T 81 *3/1999, ASC/Silkline* / 0048072

7 PGM 71 CLASS (COASTAL PATROL CRAFT) (PB)

T 14-19 **T 110**

Displacement, tons: 130 standard; 147 full load
Dimensions, feet (metres): 101 × 21 × 6 *(30.8 × 6.4 × 1.9)*
Main machinery: 2 GM diesels; 1,800 hp *(1.34 MW)*; 2 shafts
Speed, knots: 18.5. **Range, miles:** 1,500 at 10 kt
Complement: 30
Guns: 1 Bofors 40 mm/60. 1 Oerlikon 20 mm. 2—12.7 mm MGs.
In some craft the 20 mm gun has been replaced by an 81 mm mortar/12.7 mm combined mounting aft.
Radars: Surface search: Decca 303 *(T 11* and *12)* or Decca 202 (remainder); I-band.

Comment: Built by Peterson Inc between 1966 and 1970. Transferred from US. Some likely to be retained in service in view of curtailment of T 81 building programme.

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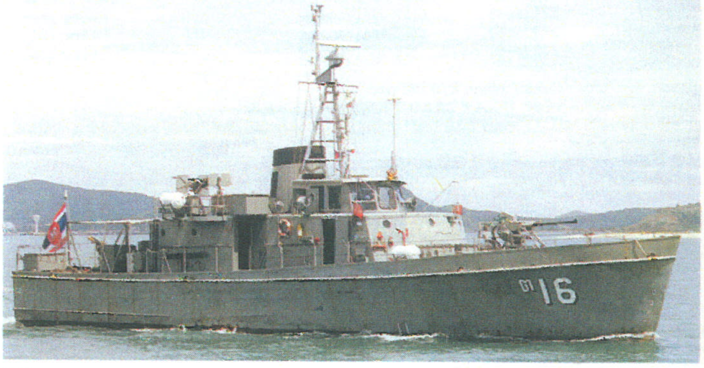

T 16 *10/1999, Royal Thai Navy* / 0080816

9 T 91 CLASS (COASTAL PATROL CRAFT) (PB)

T 91-99

Displacement, tons: 87.5 *(T 91-92)*, 117 (remainder) standard
Dimensions, feet (metres): 103.4 × 17.6 × 4.9 *(31.5 × 5.4 × 1.5) (T 91-92)*
111.6 × 18.7 × 4.9 *(34.0 × 5.7 × 1.5)* (remainder)
Main machinery: 2 MTU 12V 538 TB81/82 diesels; 3,300 hp(m) *(2.43 MW)*/4,430 hp(m) *(3.26 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 700 at 21 kt
Complement: 21 *(T 91-92)*; 25 (remainder)
Guns: 2 or 1 Bofors 40 mm/60 *(T 91* and *T 99)*. 1 Oerlikon 20 mm GAM-BO1 *(T 91* and *T 99)*. 2—12.7 mm MGs *(T 93-99)*.
Weapons control: Sea Archer 1A optronic director (*T 99* only).
Radars: Surface search: Raytheon SPS-35 (1500B); I-band.

Comment: Built by Royal Thai Naval Dockyard, Bangkok. *T 91* commissioned in 1965; *T 92-93* in 1973; *T 94-98* between 1981 and 1984; *T 99* in 1987. *T 91* has an extended upperworks and a 20 mm gun in place of the after 40 mm. *T 99* has a single Bofors 40/70, one Oerlikon 20 mm and two MGs. Major refits from 1983-86 for earlier vessels of the class.

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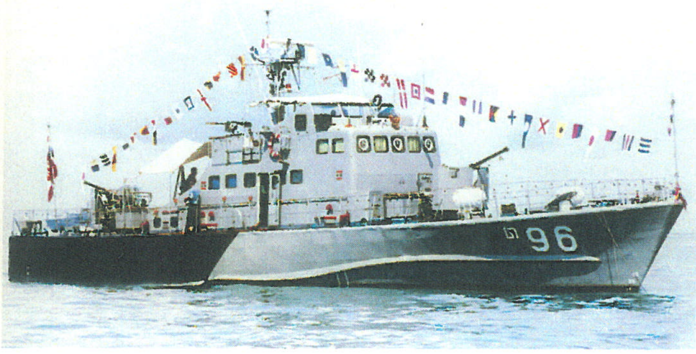

T 96 *10/2001, Chris Sattler* / 0130457

3 SEA SPECTRE MK III CLASS (PB)

T 210-212

Displacement, tons: 28; 37 full load
Dimensions, feet (metres): 65.0 × 18.0 × 5.9 *(19.8 × 5.5 × 1.8)*
Main machinery: 3 Detroit diesels; 1,800 hp *(1.34 MW)*; 3 shafts
Speed, knots: 30. **Range, miles:** 450 at 20 kt
Complement: 9 (1 officer)
Guns: 2 Oerlikon 20 mm. 1—12.7 MG.
Radars: Surface search: Raytheon; I-band.

Comment: Aluminium hulled craft built by Peterson. Transferred from the US in 1975.

VERIFIED

9 SWIFT CLASS (COASTAL PATROL CRAFT) (PB)

T 21-29

Displacement, tons: 22 full load
Dimensions, feet (metres): 50 × 13 × 3.5 *(15.2 × 4 × 1.1)*
Main machinery: 2 Detroit diesels; 480 hp *(358 kW)*; 2 shafts
Speed, knots: 25. **Range, miles:** 400 at 25 kt
Complement: 8 (1 officer)
Guns: 2—81 mm mortars. 2—12.7 mm MGs.
Radars: Surface search: Raytheon Pathfinder; I-band.

Comment: Transferred from US Navy from 1967-75.

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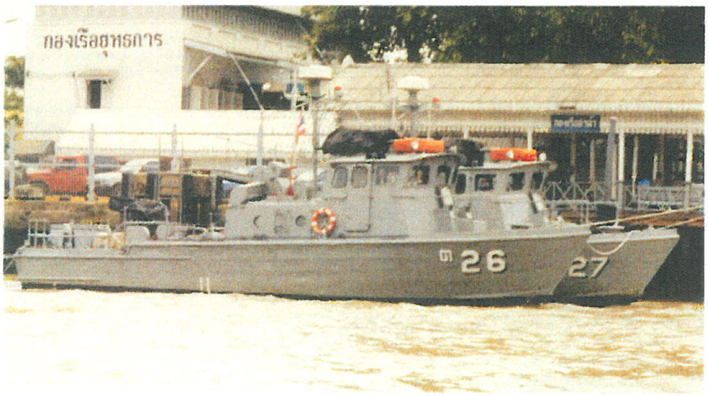

T 26 *8/1998, P Marsan* / 0080818

14 T 213 CLASS (COASTAL PATROL CRAFT) (PB)

T 213-226

Displacement, tons: 35 standard
Dimensions, feet (metres): 64 × 17.5 × 5 *(19.5 × 5.3 × 1.5)*
Main machinery: 2 MTU diesels; 715 hp(m) *(526 kW)*; 2 shafts
Speed, knots: 25
Complement: 8 (1 officer)
Guns: 1 Oerlikon 20 mm. 1—81 mm mortar with 12.7 mm MG.
Radars: Surface search: Racal Decca 110; I-band.

Comment: Built by Ital Thai Marine Ltd. Commissioned-*T 213-215*, 29 August 1980; *T 216-218*, 26 March 1981; *T 219-223*, 16 September 1981; *T 224*, 19 November 1982; *T 225* and *T 226*, 28 March 1984. Construction of *T 227-230* is not to have been completed. Of alloy construction. Used for fishery patrol and coastal control duties.

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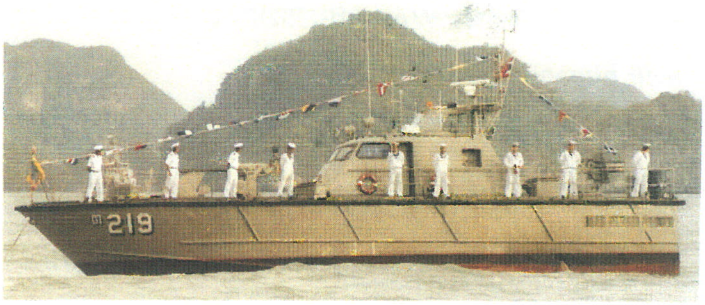

T 219 *9/2003*, Hartmut Ehlers* / 0572643

3 SEAL ASSAULT CRAFT (LCP)

Comment: Locally built for special forces operations. Details are not known but reported to be larger and faster than PBR Mk II craft. Equipped with stern ramp.

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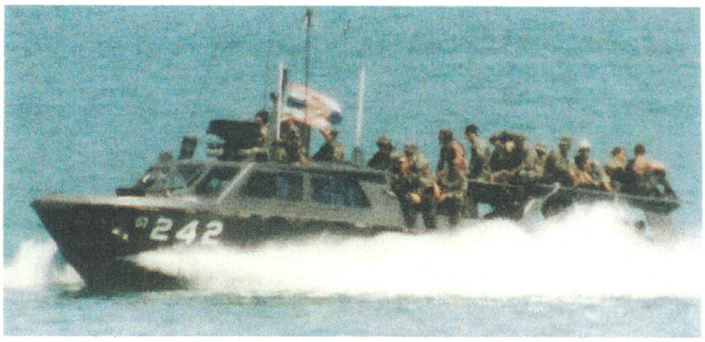


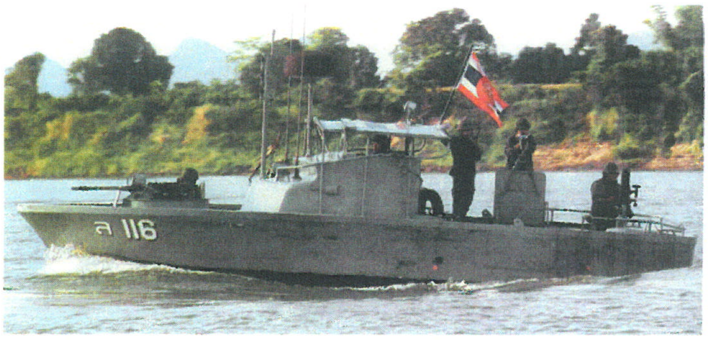
T 242 (SEAL) *5/1997, A Sharma* / 0050242

13 PBR Mk II (RIVER PATROL CRAFT) (PBR)

Displacement, tons: 8 full load
Dimensions, feet (metres): 32.1 × 11.5 × 2.3 *(9.8 × 3.5 × 0.7)*
Main machinery: 2 Detroit diesels; 430 hp *(321 kW)*; 2 Jacuzzi water-jets
Speed, knots: 25. **Range, miles:** 150 at 23 kt
Complement: 4
Guns: 2—6.72 mm MGs. 1—60 mm mortar.
Radars: Surface search: Raytheon SPS-66; I-band.

Comment: Transferred from US from 1967-73. Employed on Mekong River. Reported to be getting old, numbers are reducing and maximum speed has been virtually halved. All belong to the Riverine and SEAL Squadron.

VERIFIED



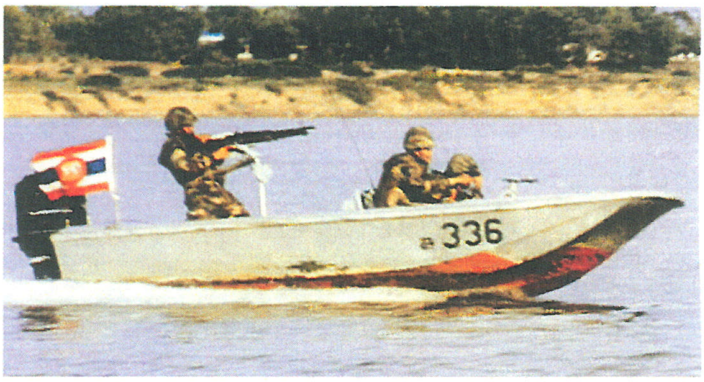
PBR MK II *6/2002, Thai Navy League* / 0543390

90 ASSAULT BOATS (LCP)

Displacement, tons: 0.4 full load
Dimensions, feet (metres): 16.4 × 6.2 × 1.3 *(5 × 1.9 × 0.4)*
Main machinery: 1 outboard; 150 hp *(110 kW)*
Speed, knots: 24
Complement: 2
Guns: 1—7.62 mm MG.

Comment: Part of the Riverine Squadron with the PBRs and two PCFs. Can carry six people. Numbers uncertain.

VERIFIED



ASSAULT BOAT *6/2002, Thai Navy League* / 0530060

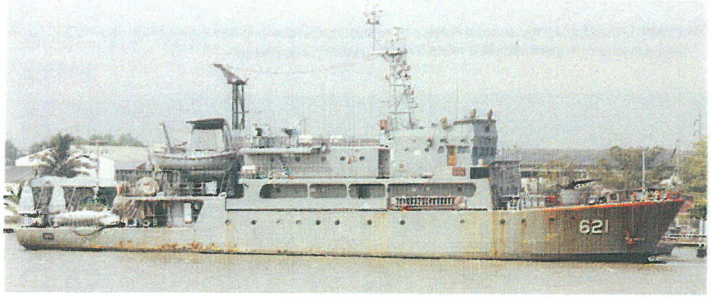
MINE WARFARE FORCES

1 MCM SUPPORT SHIP (MCS)

Name	*No*	*Builders*	*Commissioned*
THALANG	621 (ex-1)	Bangkok Dock Co Ltd	4 Aug 1980

Displacement, tons: 1,000 standard
Dimensions, feet (metres): 185.5 × 33 × 10 *(55.7 × 10 × 3.1)*
Main machinery: 2 MTU diesels; 1,310 hp(m) *(963 kW)*; 2 shafts
Speed, knots: 12
Complement: 77
Guns: 1 Bofors 40 mm/70. 2 Oerlikon 20 mm. 2—12.7 mm MGs.
Radars: Surface search: Racal Decca 1226; I-band.

Comment: Has minesweeping capability. Two 3 ton cranes provided for change of minesweeping gear in MSCs-four sets carried. Design by Ferrostaal, Essen. Has dormant minelaying capability. ***VERIFIED***



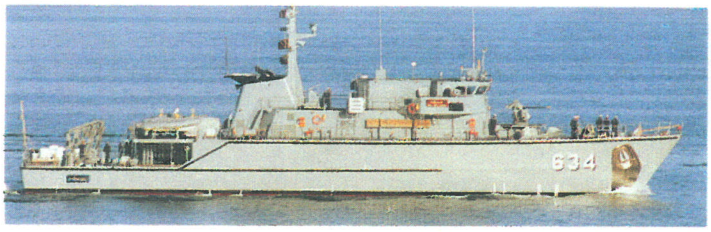
THALANG *11/2001, Maritime Photographic* / 0130165

2 LAT YA (GAETA) CLASS (MINEHUNTERS/SWEEPERS) (MHSC)

Name	*No*	*Builders*	*Launched*	*Commissioned*
LAT YA	633	Intermarine, Sarzana	30 Mar 1998	18 June 1999
THA DIN DAENG	634	Intermarine, Sarzana	31 Oct 1998	18 Dec 1999

Displacement, tons: 680 full load
Dimensions, feet (metres): 172.1 × 32.4 × 9.4 *(52.5 × 9.9 × 2.9)*
Main machinery: 2 MTU 8V 396 TE74K diesels; 1,600 hp(m) *(1.18 MW)* sustained; 2 Voith Schneider props; auxiliary propulsion; 2 hydraulic motors
Speed, knots: 14. **Range, miles:** 2,000 at 12 kt
Complement: 50 (8 officers)
Guns: 1 MSI 30 mm.
Countermeasures: MCM: Atlas MWS 80-6 minehunting system. Magnetic, acoustic and mechanical sweeps; ADI Mini Dyad, Noise Maker, Bofors MS 106, 2 Pluto Plus ROVs.
Radars: Navigation: Atlas Elektronik 9600M (ARPA); I-band.
Sonars: Atlas Elektronik DSQS-11M; hull-mounted; active; high frequency.

Comment: Invitations to tender lodged by 3 April 1996. Ordered 19 September 1996. Specifications include hunting at up to 6 kt and sweeping at 10 kt. No further ships are planned. ***VERIFIED***



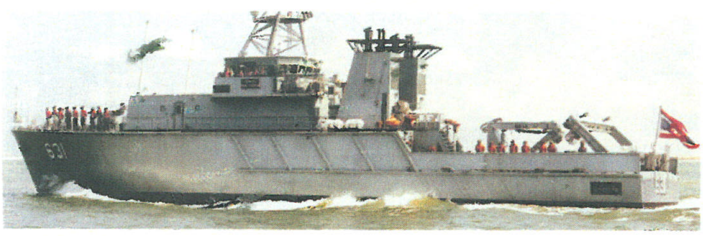
THA DIN DAENG *1/2000, Giorgio Ghiglione* / 0080821

2 BANG RACHAN CLASS (MINEHUNTERS/SWEEPERS) (MHSC)

Name	*No*	*Builders*	*Commissioned*
BANG RACHAN	631 (ex-2)	Lürssen Vegesack	29 Apr 1987
NONGSARAI	632 (ex-3)	Lürssen Vegesack	17 Nov 1987

Displacement, tons: 444 full load
Dimensions, feet (metres): 161.1 × 30.5 × 8.2 *(49.1 × 9.3 × 2.5)*
Main machinery: 2 MTU 12V 396 TB83 diesels; 3,120 hp(m) *(2.3 MW)* sustained; 2 shafts; Kamewa cp props; auxiliary propulsion; 1 motor
Speed, knots: 17; 7 (electric motor). **Range, miles:** 3,100 at 12 kt
Complement: 33 (7 officers)
Guns: 3 Oerlikon GAM-BO1 20 mm.
Countermeasures: MCM: MWS 80R minehunting system. Acoustic, magnetic and mechanical sweeps. 2 Gaymarine Pluto 15 remote-controlled submersibles.
Radars: Navigation: 2 Atlas Elektronik 8600 ARPA; I-band.
Sonars: Atlas Elektronik DSQS-11H; hull-mounted; minehunting; high frequency.

Comment: First ordered from Lürssen late 1984, arrived Bangkok 22 October 1987. Second ordered 5 August 1985 and arrived in Bangkok May 1988. Amagnetic steel frames and deckhouses, wooden hull. Motorola Miniranger MRS III precise navigation system. Draeger decompression chamber. Plans to upgrade the sonar have not been confirmed. ***VERIFIED***



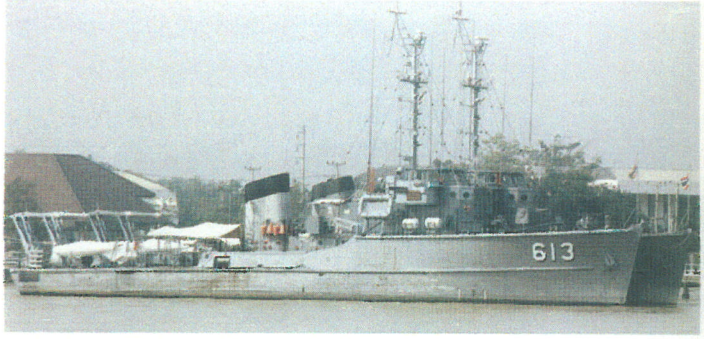
BANG RACHAN *6/2001, John Mortimer* / 0130156

2 BLUEBIRD CLASS (MINESWEEPERS—COASTAL) (MSC)

Name	*No*	*Builders*	*Commissioned*
BANGKEO (ex-*MSC 303*)	612 (ex-6)	Dorchester SB Corporation, Camden	9 July 1965
DONCHEDI (ex-*MSC 313*)	613 (ex-8)	Peterson Builders Inc, Sturgeon Bay, WI	17 Sep 1965

Displacement, tons: 317 standard; 384 full load
Dimensions, feet (metres): 145.3 × 27 × 8.5 *(44.3 × 8.2 × 2.6)*
Main machinery: 2 GM 8-268 diesels; 880 hp *(656 kW)*; 2 shafts
Speed, knots: 13. **Range, miles:** 2,750 at 12 kt
Complement: 43 (7 officers)
Guns: 2 Oerlikon 20 mm/80 (twin).
Countermeasures: MCM: US Mk 4 (V). Mk 6. US Type Q2 magnetic.
Radars: Navigation: Decca TM 707; I-band.
Sonars: UQS-1; hull-mounted; minehunting; high frequency.

Comment: Constructed for Thailand. One paid off in 1992, one in 1995 and the last two are in limited operational service. ***VERIFIED***



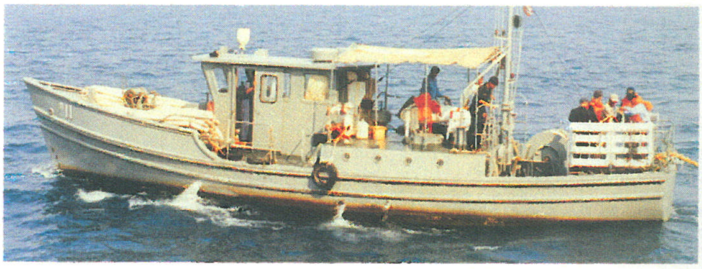
DONCHEDI *11/2001, Maritime Photographic* / 0130164

12 MSBs (MSR)

MLM 6-10 **MSB 11-17**

Displacement, tons: 25 full load
Dimensions, feet (metres): 50.2 × 13.1 × 3 *(15.3 × 4 × 0.9)*
Main machinery: 1 Gray Marine 64 HN9 diesel; 165 hp *(123 kW)*; 1 shaft
Speed, knots: 8
Complement: 10
Guns: 2—7.62 mm MGs.

Comment: Three transferred from USA in October 1963 and two in 1964. More were built locally from 1994. Wooden hulled, converted from small motor launches. Operated on Chao Phraya river. ***VERIFIED***



MSB 11 *10/1995, Royal Thai Navy* / 0080822

AMPHIBIOUS FORCES

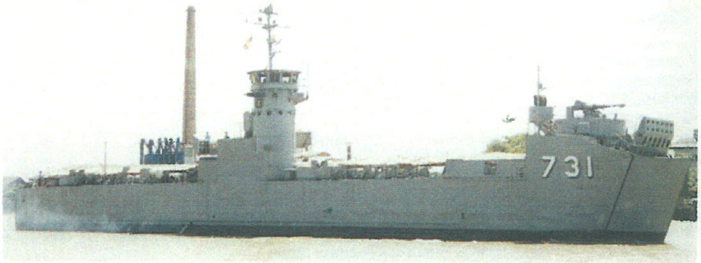
Note: There are approximately 24 landing craft of about 100 tons operated by the Army.

1 LSM 1 CLASS (LSM)

Name	*No*	*Builders*	*Commissioned*
KUT (ex-*LSM 338*)	731 (ex-LSM 1)	Pullman Std Car Co, Chicago	10 Jan 1945

Displacement, tons: 743 standard; 1,107 full load
Dimensions, feet (metres): 203.5 × 34.5 × 9.9 *(62 × 10.5 × 3)*
Main machinery: 2 Fairbanks-Morse 38D8-1/8-10 diesels; 3,540 hp *(2.64 MW)* sustained; 2 shafts
Speed, knots: 12.5. **Range, miles:** 4,500 at 12.5 kt
Complement: 91 (6 officers)
Military lift: 452 tons beaching; 50 troops with vehicles
Guns: 2 Bofors 40 mm/60 Mk 3 (twin). 4 Oerlikon 20 mm/70.
Weapons control: Mk 51 Mod 2 optical director *(Kram)*.
Radars: Surface search: Raytheon SPS-5 *(Kram)*; G/H-band.
Navigation: Raytheon 1500 B; I-band.

Comment: Former US landing ship of the LCM, later LSM (Medium Landing Ship) type. Transferred in 1946. *Kram* reported sunk as a target in February 2003. ***UPDATED***



KUT *6/1998, Royal Thai Navy* / 0050244

2 NORMED CLASS (LSTH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SICHANG	721 (ex-LST 6)	Ital Thai	14 Apr 1987	9 Oct 1987
SURIN	722 (ex-LST 7)	Bangkok Dock Co Ltd	12 Apr 1988	16 Dec 1988

Displacement, tons: 3,540 standard; 4,235 full load
Dimensions, feet (metres): 337.8; 357.6 (722) × 51.5 × 11.5 *(103; 109 × 15.7 × 3.5)*
Main machinery: 2 MTU 20V 1163 TB82 diesels; 11,000 hp(m) *(8.1 MW)* sustained; 2 shafts; cp props
Speed, knots: 16. **Range, miles:** 7,000 at 12 kt
Complement: 53
Military lift: 348 troops; 14 tanks or 12 APCs or 850 tons cargo; 3 LCVP; 1 LCPL
Guns: 2 Bofors 40 mm/70. 2 Oerlikon GAM-CO1 20 mm. 2—12.7 mm MGs. 1—81 mm mortar.
Weapons control: 2 BAe Sea Archer Mk 1A optronic directors.
Radars: Navigation: Racal Decca 1226; I-band.
Helicopters: Platform for 2 Bell 212.

Comment: First ordered 31 August 1984 to a Chantier du Nord (Normed) design. Second ordered to a modified design and lengthened to accommodate a battalion. The largest naval ships yet built in Thailand. Have bow doors and a 17 m ramp.

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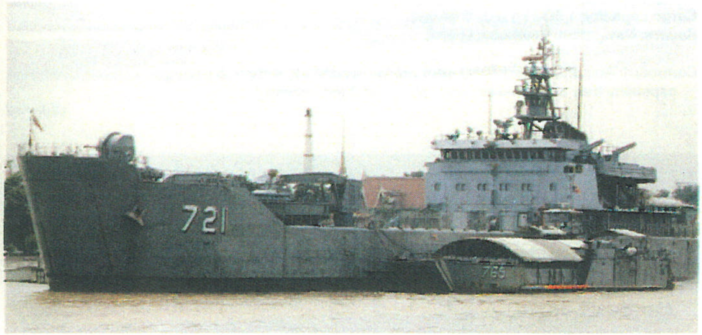
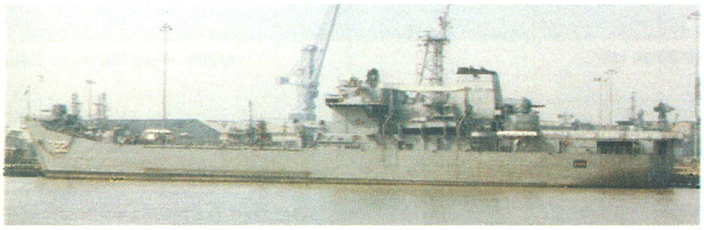


SICHANG (KOLAM alongside) *11/2001, Maritime Photographic* / 0130162



SURIN *11/2001, Maritime Photographic* / 0130163

4 LST 512-1152 CLASS (LST)

Name	*No*	*Builders*	*Commissioned*
CHANG (ex-*Lincoln County* LST 898)	712 (ex-LST 2)	Dravo Corporation	29 Dec 1944
PANGAN (ex-*Stark County* LST 1134)	713 (ex-LST 3)	Chicago Bridge and Iron Co, ILL	7 Apr 1945
LANTA (ex-*Stone County* LST 1141)	714 (ex-LST 4)	Chicago Bridge and Iron Co, ILL	9 May 1945
PRATHONG (ex-*Dodge County* LST 722)	715 (ex-LST 5)	Jefferson B & M Co, Ind	13 Sep 1944

Displacement, tons: 1,650 standard; 3,640/4,145 full load
Dimensions, feet (metres): 328 × 50 × 14 *(100 × 15.2 × 4.4)*
Main machinery: 2 GM 12-567A diesels; 1,800 hp *(1.34 MW)*; 2 shafts
Speed, knots: 11.5. **Range, miles:** 9,500 at 9 kt
Complement: 80; 157 (war)
Military lift: 1,230 tons max; 815 tons beaching
Guns: 8 Bofors 40 mm/60 (2 twin, 4 single) (can be carried). 2—12.7 mm MGs *(Chang)*. 2 Oerlikon 20 mm (others).
Weapons control: 2 Mk 51 GFCS. 2 optical systems.
Radars: Navigation: Racal Decca 1229; I/J-band.

Comment: *Chang* transferred from USA in August 1962. *Pangan* 16 May 1966, *Lanta* on 15 August 1973 (by sale 1 March 1979) and *Prathong* on 17 December 1975. *Chang* has a reinforced bow and waterline. *Lanta, Prathong* and *Chang* have mobile crane on the well-deck. All have tripod mast.

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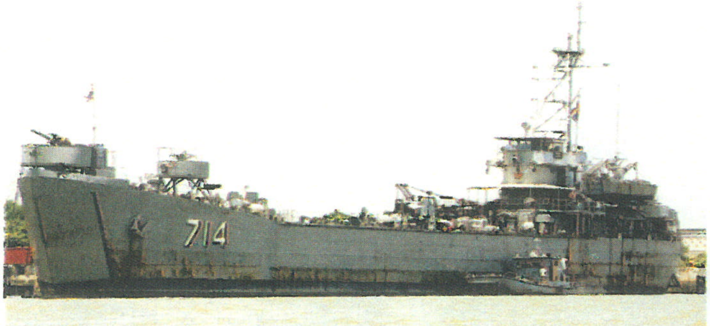


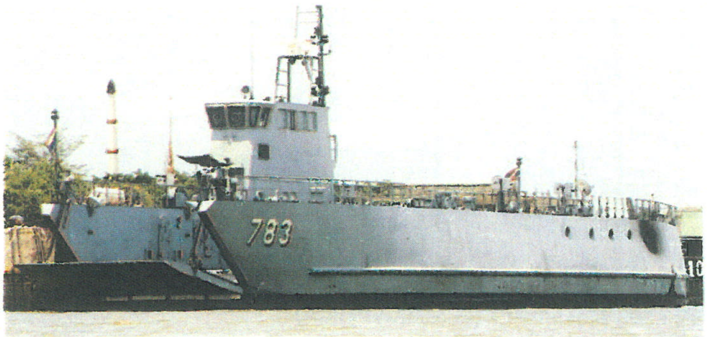
LANTA *5/2002, Mick Prendergast* / 0530001

3 MAN NOK CLASS (LCU)

Name	*No*	*Builders*	*Commissioned*
MAN NOK	781	Pranburi, Kra Isthmus	2002
MAN KLANG	782	Pranburi, Kra Isthmus	2002
MAN NAI	783	Pranburi, Kra Isthmus	2002

Displacement, tons: 170 light; 550 full load
Dimensions, feet (metres): 172 × 36.7 × 5.9 *(52.4 × 11.2 × 1.8)*
Main machinery: 2 MAN 2842 LE 403 V12 diesels; 700 hp(m) *(515 kW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 1,500 at 10 kt
Complement: 30 (3 officers)
Military lift: 2 M60 tanks or 25 tons vehicles
Guns: 2 Oerlikon 20 mm.
Radars: Navigation: I-band.

Comment: Ordered from Silkline ASC in 1997. All three craft launched 1 May 2000. ***VERIFIED***



MAN NAI *5/2002, Mick Prendergast* / 0530000

2 LSIL 351 CLASS (LCM)

PRAB 741 (ex-LSIL 1) **SATAKUT** 742 (ex-LSIL 2)

Displacement, tons: 230 standard; 399 full load
Dimensions, feet (metres): 157 × 23 × 6 *(47.9 × 7 × 1.8)*
Main machinery: 4 GM diesels; 2,320 bhp *(1.73 MW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 5,600 at 12.5 kt
Complement: 49 (7 officers)
Military lift: 101 tons or 76 troops
Guns: 1 US 3 in *(76 mm)*/50. 1 Bofors 40 mm/60. 2 Oerlikon 20 mm/70.
Radars: Surface search: Raytheon SPS-35 (1500B); I-band.

Comment: *Prab* transferred to Thailand in October 1946. *Satakut* was refitted in the mid-1990s.

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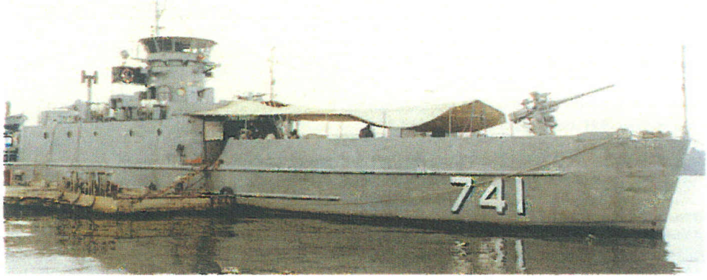

PRAB *2/1998, Thai Navy League* / 0019275

4 THONG KAEO CLASS (LCU)

Name	*No*	*Builders*	*Commissioned*
THONG KAEO	771 (ex-7)	Bangkok Dock Co Ltd	23 Dec 1982
THONG LANG	772 (ex-8)	Bangkok Dock Co Ltd	19 Apr 1983
WANG NOK	773 (ex-9)	Bangkok Dock Co Ltd	16 Sep 1983
WANG NAI	774 (ex-10)	Bangkok Dock Co Ltd	11 Nov 1983

Displacement, tons: 193 standard; 396 full load
Dimensions, feet (metres): 134.5 × 29.5 × 6.9 *(41 × 9 × 2.1)*
Main machinery: 2 GM 16V-71 diesels; 1,400 hp *(1.04 MW)*; 2 shafts
Speed, knots: 10. **Range, miles:** 1,200 at 10 kt
Complement: 31 (3 officers)
Military lift: 3 lorries; 150 tons equipment
Guns: 2 Oerlikon 20 mm. 2—7.62 mm MGs.

Comment: Ordered in 1980.

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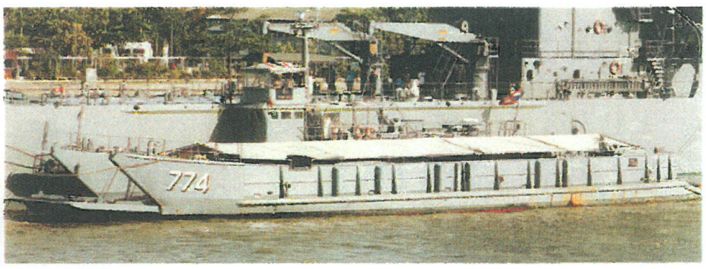

WANG NAI *5/1997, Maritime Photographic* / 0019276

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6 MATAPHON CLASS (LCM/LCVP/LCP)

MATAPHON 761 (ex-LCU 1260)
RAWI 762 (ex-LCU 800)
ADANG 763 (ex-LCU 861)
PHETRA 764 (ex-LCU 1089)
KOLAM 765 (ex-LCU 904)
TALIBONG 766 (ex-LCU 753)

Displacement, tons: 145 standard; 330 full load
Dimensions, feet (metres): 120.4 × 32 × 4 *(36.7 × 9.8 × 1.2)*
Main machinery: 3 Gray Marine 65 diesels; 675 hp *(503 kW)*; 3 shafts
Speed, knots: 10. **Range, miles:** 650 at 8 kt
Complement: 13
Military lift: 150 tons or 3-4 tanks or 250 troops
Guns: 4 Oerlikon 20 mm (2 twin).
Radars: Navigation: Raytheon Pathfinder; I-band.

Comment: Transferred from US 1946-47. Employed as transport ferries. ***VERIFIED***

TALIBONG *11/2001, Maritime Photographic* / 0130160

LCM 208 *11/1998, Thai Navy League* / 0050247

40 LANDING CRAFT (LCM/LCVP/LCA)

Displacement, tons: 56 full load
Dimensions, feet (metres): 56.1 × 14.1 × 3.9 *(17.1 × 4.3 × 1.2)*
Main machinery: 2 Gray Marine 64 HN9 diesels; 330 hp *(264 kW)*; 2 shafts
Speed, knots: 9. **Range, miles:** 135 at 9 kt
Complement: 5
Military lift: 34 tons

Comment: Details given are for the 24 ex-US LCMs delivered in 1965-69. The 12 ex-US LCVPs can lift 40 troops and are of 1960s vintage. The four LCAs can lift 35 troops and were built in 1984 in Bangkok. ***VERIFIED***

3 GRIFFON 1000 TD HOVERCRAFT (UCAC)

401-403

Dimensions, feet (metres): 27.6 × 12.5 *(8.4 × 3.8)*
Main machinery: 1 Deutz BF6L913C diesel; 190 hp(m) *(140 kW)*
Speed, knots: 33. **Range, miles:** 200 at 27 kt
Complement: 2
Cargo capacity: 1,000 kg plus 9 troops
Radars: Navigation: Raytheon; I-band.

Comment: Acquired in mid-1990 from Griffon Hovercraft. Although having an obvious amphibious capability they are also used for rescue and flood control. ***VERIFIED***

GRIFFON 401 *6/1999, Royal Thai Navy* / 0084413

TRAINING SHIPS

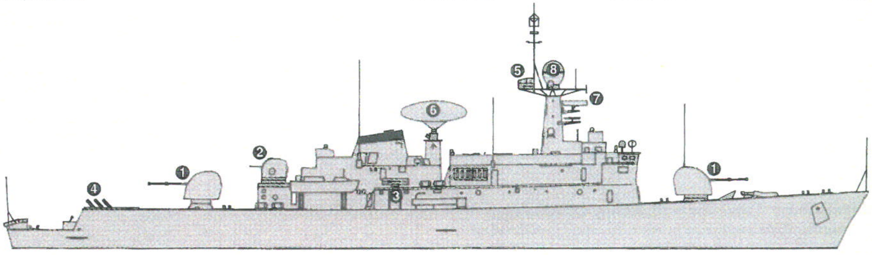
Notes: A 3,500 ton ship Carlskrona type is wanted for training and as a support ship.

1 YARROW TYPE (TRAINING SHIP) (FFH/AX)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
MAKUT RAJAKUMARN	433 (ex-7)	Yarrow Shipbuilders	11 Jan 1970	18 Nov 1971	7 May 1973

Displacement, tons: 1,650 standard; 1,900 full load
Dimensions, feet (metres): 320 × 36 × 18.1 *(97.6 × 11 × 5.5)*
Main machinery: CODOG; 1 RR Olympus TM3B gas turbine; 22,500 hp *(16.8 MW)* sustained; 1 Crossley-SEMT-Pielstick 12 PC2.2 V 400 diesel; 6,000 hp(m) *(4.4 MW)* sustained; 2 shafts
Speed, knots: 26 gas; 18 diesel
Range, miles: 5,000 at 18 kt; 1,200 at 26 kt
Complement: 140 (16 officers)

Guns: 2 Vickers 4.5 in *(114 mm)*/55 Mk 8 ❶; 25 rds/min to 22 km *(12 n miles)* anti-surface; 6 km *(3.3 n miles)* anti-aircraft; weight of shell 21 kg.
2 Bofors 40 mm/70 (twin) ❷; 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
2 Oerlikon 20 mm.
Torpedoes: 6 Plessey PMW 49A tubes ❸ Mk 46; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
A/S mortars: 1 Limbo 3-tubed Mk 10 ❹.
Depth charges: 1 rack.
Countermeasures: Decoys: 2 Loral Mk 135 chaff launchers.
ESM/ECM: Elettronica Newton ❺; intercept and jammer. WLR-1; radar warning.
Combat data systems: Signaal Sewaco TH.
Radars: Air/surface search: Signaal DA05 ❻; E/F-band; range 137 km *(75 n miles)* for 2 m² target.
Surface search: Signaal ZW06 ❼; I-band.



MAKUT RAJAKUMARN *(Scale 1 : 900), Ian Sturton* / 0080806

Fire control: Signaal WM22/61 ❽; I/J-band; range 46 km *(25 n miles)*.
Navigation: Racal Decca; I-band.
Sonars: Atlas Elektronik DSQS-21C; hull-mounted; active search and attack; medium frequency.

Helicopters: A small helicopter can land when the Mortar Mk 10 well is closed.

Programmes: Ordered on 21 August 1969.
Modernisation: A severe fire in February 1984 resulted in extensive work including replacement of the Olympus gas turbine, a new ER control room and central electric switchboard. Further modifications included the removal of Seacat SAM system and the installation of new EW equipment in 1993. In 1997 two Bofors 40 mm were fitted on the old Seacat mounting, and torpedo tubes replaced the old Bofors abreast the funnel.
Operational: The ship is largely automated with a consequent saving in complement, and has been most successful in service. Has lost its Flagship role to one of the Chinese-built frigates and become a training ship. ***UPDATED***

MAKUT RAJAKUMARN *7/1999, John Mortimer* / 0080807

1 CANNON CLASS (FFT)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
PIN KLAO (ex-*Hemminger* DE 746)	413 (ex-3, ex-1)	Western Pipe & Steel Co	1943	12 Sep 1943	30 May 1944

Displacement, tons: 1,240 standard; 1,930 full load
Dimensions, feet (metres): 306 × 36.7 × 14 *(93.3 × 11.2 × 4.3)*
Main machinery: Diesel-electric; 4 GM 16-278A diesels; 6,000 hp *(4.5 MW)*; 4 generators; 2 motors; 2 shafts
Speed, knots: 20. **Range, miles:** 10,800 at 12 kt; 6,700 at 19 kt
Complement: 192 (14 officers)

Guns: 3 USN 3 in *(76 mm)*/50 Mk 22; 20 rds/min to 12 km *(6.6 n miles)*; weight of shell 6 kg.
6 Bofors 40 mm/60 (3 twin); 120 rds/min to 10 km *(5.5 n miles)*; weight of shell 0.89 kg.
Torpedoes: 6—324 mm US Mk 32 (2 triple) tubes; anti-submarine.
A/S mortars: 1 Hedgehog Mk 10 multibarrelled fixed; range 250 m; warhead 13.6 kg; 24 rockets.
Depth charges: 8 projectors; 2 racks.
Countermeasures: ESM: WLR-1; radar warning.
Weapons control: Mk 52 radar GFCS for 3 in guns. Mk 63 radar GFCS for aft gun only. 2 Mk 51 optical GFCS for 40 mm.
Radars: Air/surface search: Raytheon SPS-5; G/H-band.
Navigation: Raytheon SPS-21; G/H-band.
Fire control: Western Electric Mk 34; I/J-band.
RCA/General Electric Mk 26; I/J-band.
IFF: SLR 1.
Sonars: SQS-11; hull-mounted; active attack; high frequency.

Programmes: Transferred from US Navy at New York Navy Shipyard in July 1959 under MDAP and by sale 6 June 1975.
Modernisation: The three 21 in torpedo tubes were removed and the 20 mm guns were replaced by 40 mm. The six A/S torpedo tubes were fitted in 1966.
Operational: Used mostly as a training ship.

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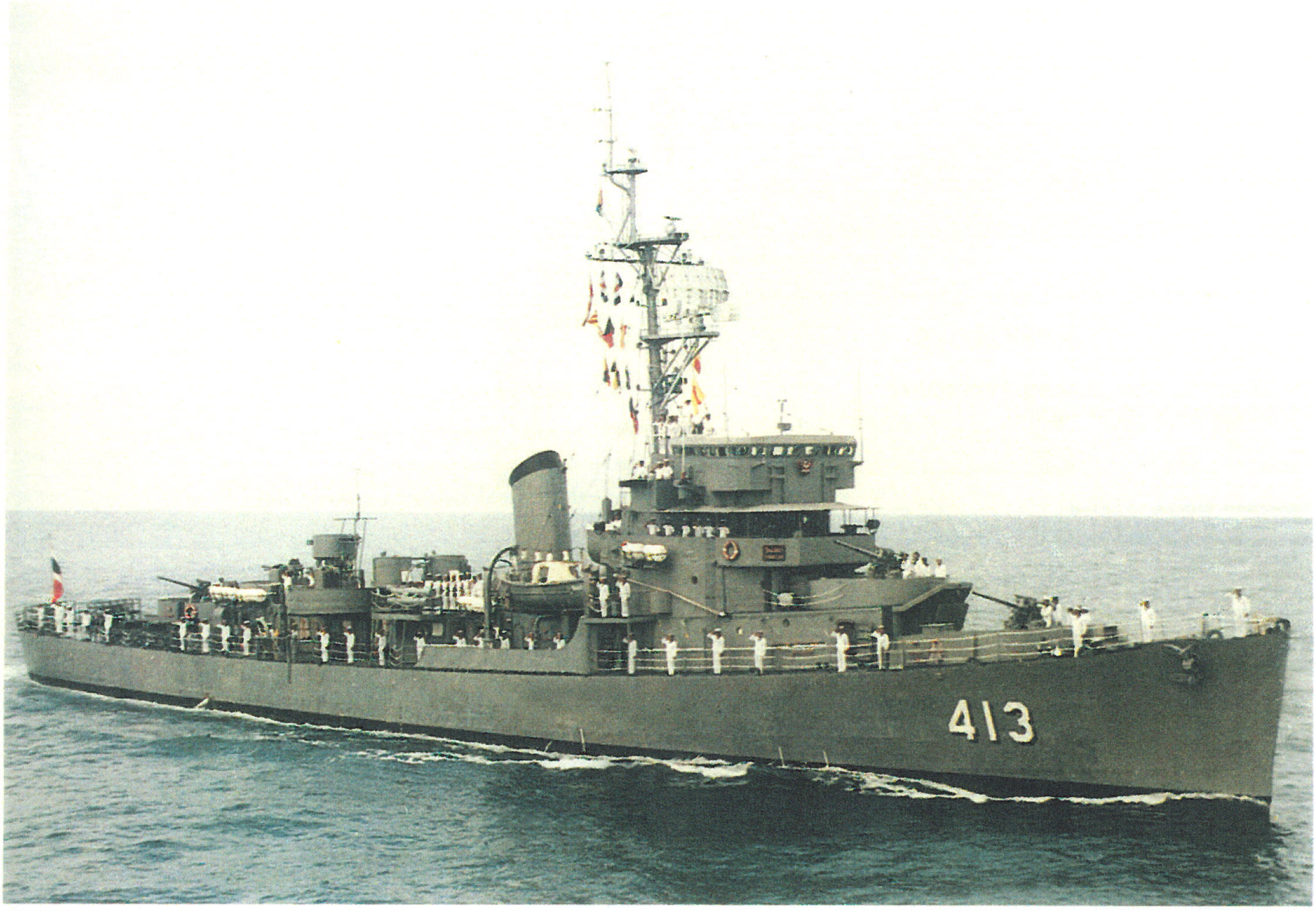

PIN KLAO *6/1997, Royal Thai Navy* / 0019254

1 ALGERINE CLASS (AXL)

Name	*No*	*Builders*	*Commissioned*
PHOSAMTON (ex-*Minstrel*)	611 (ex-415, ex-MSF 1)	Redfern Construction Co	9 June 1945

Displacement, tons: 1,040 standard; 1,335 full load
Dimensions, feet (metres): 225 × 35.5 × 11.5 *(68.6 × 10.8 × 3.5)*
Main machinery: 2 boilers; 2 reciprocating engines; 2,000 ihp *(1.49 MW)*; 2 shafts
Speed, knots: 16. **Range, miles:** 4,000 at 10 kt
Complement: 103
Guns: 1 USN 3 in *(76 mm)*/50. 1 Bofors 40 mm/60. 4 Oerlikon 20 mm.
Radars: Navigation: Raytheon Pathfinder; I-band.

Comment: Transferred from UK in April 1947. Received engineering overhaul in 1984. Minesweeping gear replaced by a deckhouse to increase training space. Vickers 4 in gun replaced.

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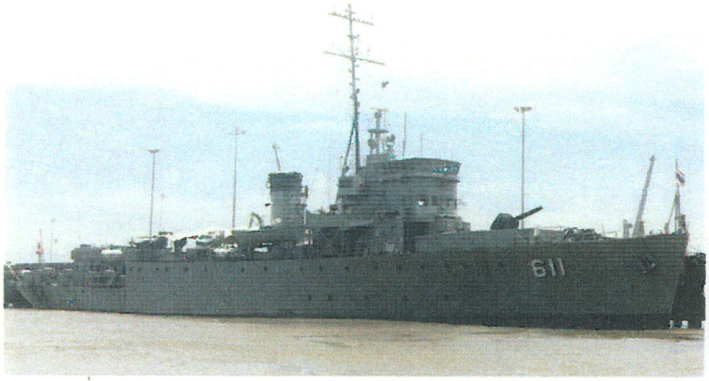

PHOSAMTON *8/2002, John Mortimer* / 0529999

SURVEY AND RESEARCH SHIPS

Notes: There is also a civilian research vessel *Chulab Horn* which completed in 1986.

1 OCEANOGRAPHIC SHIP (AGOR)

Name	*No*	*Builders*	*Commissioned*
SUK	812	Bangkok Dock Co Ltd	3 Mar 1982

Displacement, tons: 1,450 standard; 1,526 full load
Dimensions, feet (metres): 206.3 × 36.1 × 13.4 *(62.9 × 11 × 4.1)*
Main machinery: 2 MTU diesels; 2,400 hp(m) *(1.76 MW)*; 2 shafts
Speed, knots: 15
Complement: 86 (20 officers)
Guns: 2 Oerlikon 20 mm. 2—7.62 mm MGs.
Radars: Navigation: Racal Decca 1226; I-band.

Comment: Laid down 27 August 1979, launched 8 September 1981. Designed for oceanographic and survey duties.

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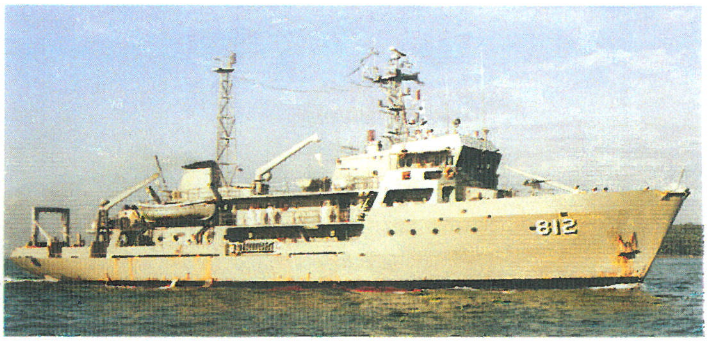

SUK *5/1999, van Ginderen Collection* / 0080828

1 SURVEY SHIP (AGS)

Name	*No*	*Builders*	*Commissioned*
CHANTHARA	811 (ex-AGS 11)	Lürssen Werft	30 May 1961

Displacement, tons: 870 standard; 996 full load
Dimensions, feet (metres): 229.2 × 34.5 × 10 *(69.9 × 10.5 × 3)*
Main machinery: 2 KHD diesels; 1,090 hp(m) *(801 kW)*; 2 shafts
Speed, knots: 13.25. **Range, miles:** 10,000 at 10 kt
Complement: 68 (8 officers)
Guns: 2 Bofors 40 mm/60.

Comment: Laid down on 27 September 1960. Launched on 17 December 1960. Has served as a Royal Yacht.

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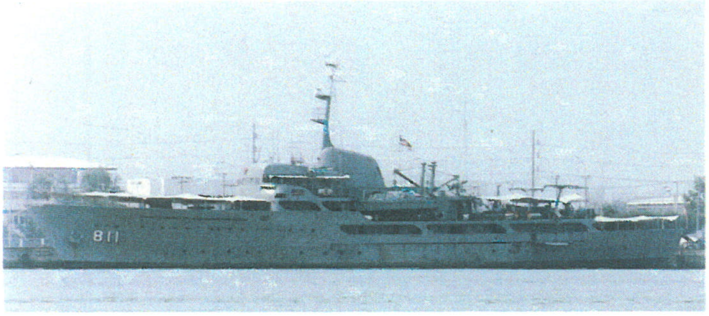

CHANTHARA *12/2001, Thai Navy League* / 0130158

AUXILIARIES

1 SIMILAN (HUDONG) CLASS (TYPE R22T) (REPLENISHMENT SHIP) (AORH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SIMILAN	871	Hudong Shipyard, Shanghai	9 Nov 1995	12 Sep 1996

Displacement, tons: 23,000 full load
Dimensions, feet (metres): 562.3 × 80.7 × 29.5 *(171.4 × 24.6 × 9)*
Main machinery: 2 HD-SEMT-Pielstick 16 PC2 6V400; 24,000 hp(m) *(17.64 MW)*; 2 shafts; Kamewa cp props
Speed, knots: 19. **Range, miles:** 10,000 at 15 kt
Complement: 157 (19 officers) plus 26
Cargo capacity: 9,000 tons fuel, water, ammunition and stores
Radars: Air/surface search: Eye Shield (Type 354); E/F-band.
Navigation: Racal Decca 1290 ARPA; I-band.
Helicopters: 1 Seahawk type.

Comment: Contract signed with China State Shipbuilding Corporation on 29 September 1993. Fabrication started in December 1994. Two replenishment at sea positions each side and facilities for Vertrep. This ship complements the carrier and the new frigates to give the Navy a full deployment capability. Four twin 37 mm guns (Type 354) and associated Rice Lamp FC radar were not fitted.

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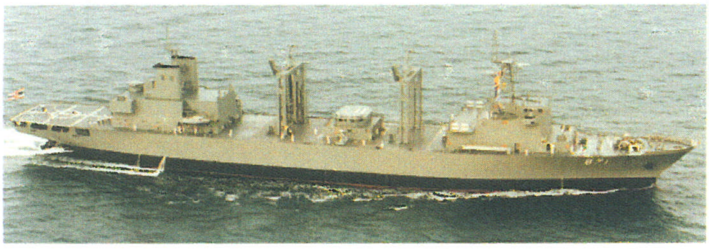

SIMILAN *10/1998, Thai Navy League* / 0050248

1 REPLENISHMENT TANKER (AORL)

Name	*No*	*Builders*	*Launched*
CHULA	831 (ex-2)	Singapore SEC	24 Sep 1980

Displacement, tons: 2,000 full load
Measurement, tons: 960 dwt
Dimensions, feet (metres): 219.8 × 31.2 × 14.4 *(67 × 9.5 × 4.4)*
Main machinery: 2 MTU 12V 396 TC62 diesels; 2,400 hp(m) *(1.76 MW)* sustained; 2 shafts
Speed, knots: 14
Complement: 39 (7 officers)
Cargo capacity: 800 tons oil fuel
Guns: 2 Oerlikon 20 mm.
Radars: Navigation: Racal Decca 1226; I-band.

Comment: Replenishment is done by a hose handling crane boom.

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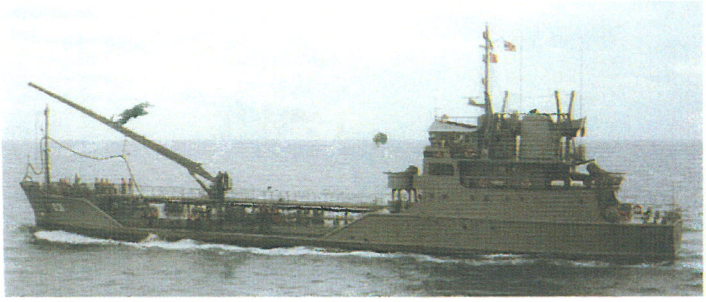

CHULA *6/1998, Royal Thai Navy* / 0050249

4 HARBOUR TANKERS (YO)

PRONG 833 (ex-YO 5) **PROET** 834 (ex-YO 9) **SAMED** 835 (ex-YO 10) **CHIK** 842 (ex-YO 11)

Displacement, tons: 360 standard; 485 full load
Dimensions, feet (metres): 122.7 × 19.7 × 8.7 *(37.4 × 6 × 2.7)*
Main machinery: 1 GM 8-268A diesel; 500 hp(m) *(368 kW)*; 1 shaft
Speed, knots: 9
Cargo capacity: 210 tons

Comment: Details are for 834, 835 and 842. Built by Bangkok Naval Dockyard. 834 commissioned 27 January 1967, remainder the same year. Details of 833 not known but reported to be approximately 180 tons.

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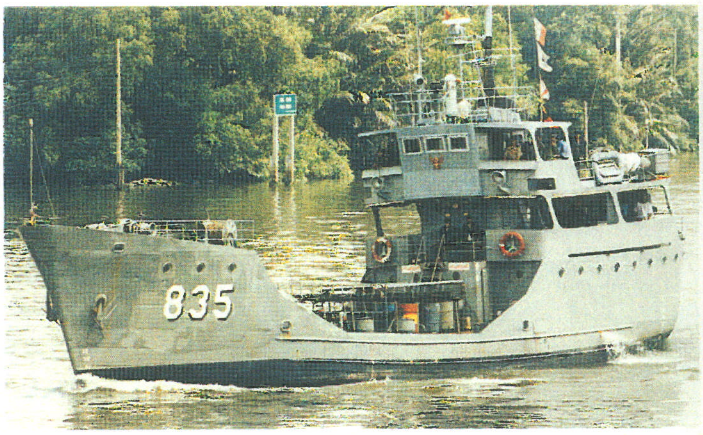

SAMED *5/1999* / 0080829

1 HARBOUR TANKER (YO)

SAMUI 832 (ex-YOG 60, ex-YO 4)

Displacement, tons: 1,420 full load
Dimensions, feet (metres): 174.5 × 32 × 15 *(53.2 × 9.7 × 4.6)*
Main machinery: 1 Union diesel; 600 hp *(448 kW)*; 1 shaft
Speed, knots: 8
Complement: 29
Cargo capacity: 985 tons fuel
Guns: 2 Oerlikon 20 mm can be carried.
Radars: Navigation: Raytheon Pathfinder; I-band.

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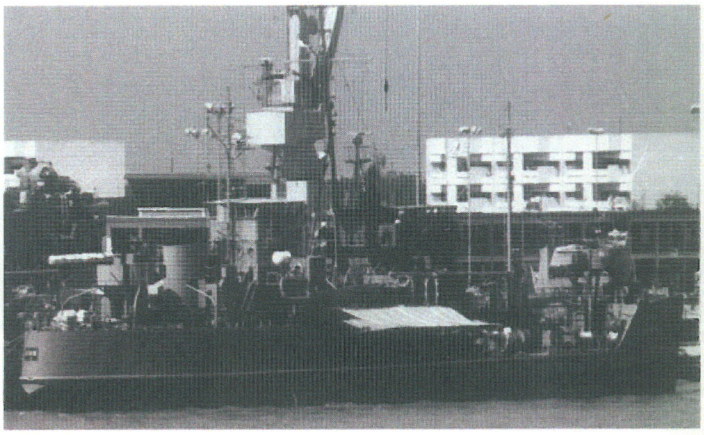

SAMUI *12/1995*

1 WATER TANKER (YW)

Name	*No*	*Builders*	*Commissioned*
CHUANG	841 (ex-YW 5)	Royal Thai Naval Dockyard, Bangkok	1965

Displacement, tons: 305 standard; 485 full load
Dimensions, feet (metres): 136 × 24.6 × 10 *(42 × 7.5 × 3.1)*
Main machinery: 1 GM diesel; 500 hp *(373 kW)*; 1 shaft
Speed, knots: 11
Complement: 29
Guns: 1 Oerlikon 20 mm.

Comment: Launched on 14 January 1965.

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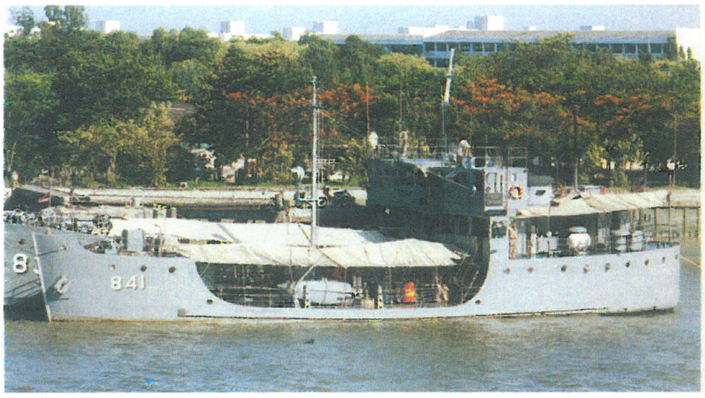

CHUANG (alongside Proet) *5/1997, Maritime Photographic* / 0019284

1 TRANSPORT SHIP (AKS)

Name	*No*	*Builders*	*Commissioned*
KLED KEO	861 (ex-AF-7)	Norfjord, Norway	1948

Displacement, tons: 450 full load
Dimensions, feet (metres): 150.1 × 24.9 × 14 *(46 × 7.6 × 4.3)*
Main machinery: 1 CAT diesel; 900 hp(m) *(662 kW)*; 1 shaft
Speed, knots: 12
Complement: 54 (7 officers)
Guns: 3 Oerlikon 20 mm.

Comment: Former Norwegian transport acquired in 1956. Paid off in 1990 but back in service in 1997. Operates with the patrol boat squadron.

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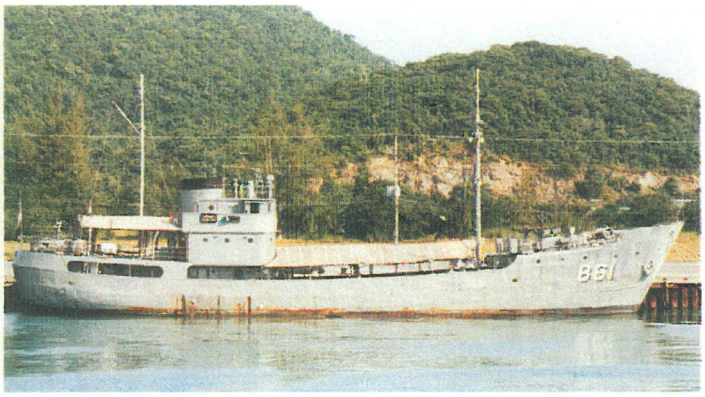

KLED KEO *6/1998, Royal Thai Navy* / 0050250

1 BUOY TENDER (ABU)

Name	*No*	*Builders*	*Commissioned*
SURIYA	821	Bangkok Dock Co Ltd	15 Mar 1979

Displacement, tons: 690 full load
Dimensions, feet (metres): 177.8 × 33.5 × 10.2 *(54.2 × 10.2 × 3.1)*
Main machinery: 2 MTU diesels; 1,310 hp(m) *(963 kW)*; 2 shafts; bow thruster; 135 hp(m) *(99 kW)*
Speed, knots: 12
Complement: 60 (12 officers)
Radars: Navigation: Racal Decca; I-band.

Comment: Can carry 20 mm guns.

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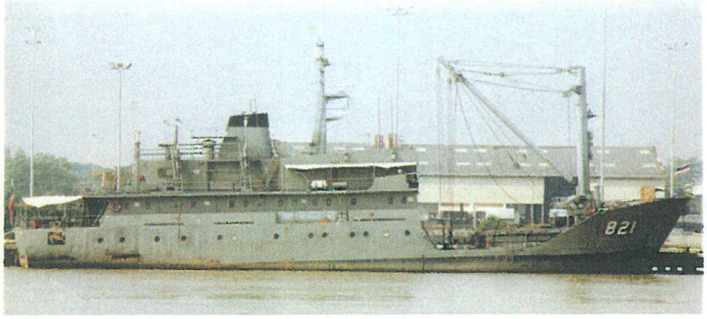

SURIYA *11/2001, Maritime Photographic* / 0130167

TUGS

2 COASTAL TUGS (YTB)

RIN 853 (ex-ATA 5) **RANG** 854 (ex-ATA 6)

Displacement, tons: 350 standard
Dimensions, feet (metres): 106 × 29.7 × 15.2 *(32.3 × 9 × 4.6)*
Main machinery: 1 MWM TBD441V/12K diesel; 2,100 hp(m) *(1.54 MW)*; 1 shaft
Speed, knots: 12. **Range, miles:** 1,000 at 10 kt
Complement: 19

Comment: Launched 12 and 14 June 1980 at Singapore Marine Shipyard. Both commissioned 5 March 1981. Bollard pull 22 tons.

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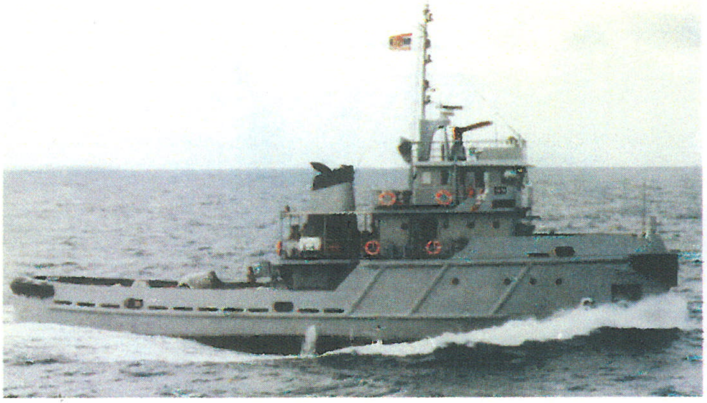

RANG *1992, Royal Thai Navy* / 0080830

2 SAMAESAN CLASS (COASTAL TUGS) (YTR)

SAMAESAN 855 **RAET** 856

Displacement, tons: 300 standard
Dimensions, feet (metres): 82 × 27.9 × 7.9 *(25 × 8.5 × 2.4)*
Main machinery: 2 Caterpillar 3512TA diesels; 2,350 hp(m) *(1.75 MW)* sustained; 2 Aquamaster US 901 props
Speed, knots: 10
Complement: 6

Comment: Contract signed 23 September 1992 for local construction at Thonburi Naval dockyard. Completed in December 1993. Equipped for firefighting.

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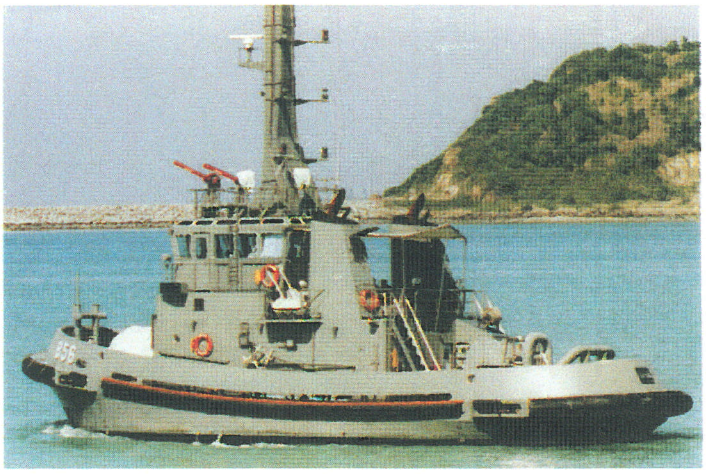

RAET *5/1997, A Sharma* / 0050251

2 YTL 422 CLASS (YTL)

KLUENG BADAAN 851 (ex-YTL 2) **MARN VICHAI** 852 (ex-YTL 3)

Displacement, tons: 63 standard
Dimensions, feet (metres): 64.7 × 16.5 × 6 *(19.7 × 5 × 1.8)*
Main machinery: 1 diesel; 240 hp *(179 kW)*; 1 shaft
Speed, knots: 8

Comment: Built by Central Bridge Co, Trenton and bought from Canada 1953.

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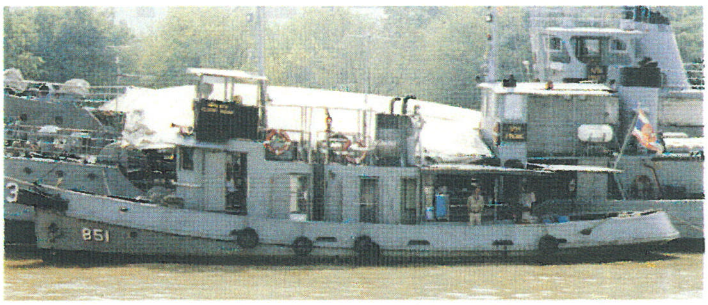

KLUENG BADAAN *11/2001, Maritime Photographic* / 0130166

POLICE

Notes: (1) There is also a Customs service which operates unarmed patrol craft with CUSTOMS on the hull, and a Fishery Patrol Service also unarmed but vessels are painted blue with broad white and narrow gold diagonal stripes on the hull. Two Hydrofoil craft are on loan from the Police to the Customs service.
(2) There are large numbers of RIBs in service.

1 VOSPER THORNYCROFT TYPE (LARGE PATROL CRAFT) (PSO)

SRINAKARIN 1804

Displacement, tons: 630 full load
Dimensions, feet (metres): 203.4 × 26.9 × 8.2 *(62 × 8.2 × 2.5)*
Main machinery: 2 Deutz MWM BV16M628 diesels; 9,524 hp(m) *(7 MW)* sustained; 2 shafts; Kamewa cp props
Speed, knots: 25. **Range, miles:** 2,500 at 15 kt
Complement: 45
Guns: 1 Breda 30 mm/82. 2 Oerlikon 20 mm. GAM-BO1.
Radars: Surface search: Racal Decca 1226; I-band.

Comment: Ordered in September 1989 from Ital Thai Marine. Same hull as the 'Khamronsin' class corvettes for the Navy but much more lightly armed. Delivered in April 1992.

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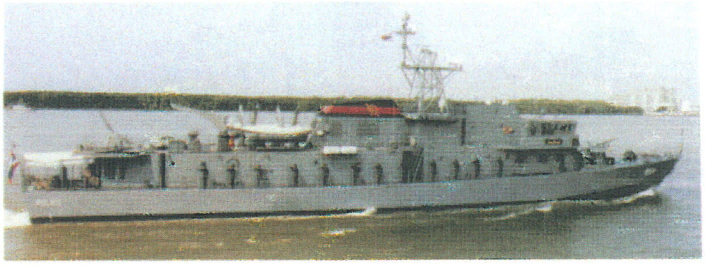

SRINAKARIN *6/2003*, Royal Thai Navy* / 0572648

2 HAMELN TYPE (LARGE PATROL CRAFT) (PBO)

DAMRONG RACHANUPHAP 1802 **LOPBURI RAMES** 1803

Displacement, tons: 430 full load
Dimensions, feet (metres): 186 × 26.6 × 8 *(56.7 × 8.1 × 2.4)*
Main machinery: 4 MTU diesels; 4,400 hp(m) *(3.23 MW)*; 2 shafts
Speed, knots: 23
Complement: 45
Guns: 2 Oerlikon 30 mm/75 (twin). 2 Oerlikon 20 mm (twin).
Radars: Surface search: Racal Decca 1226; I-band.

Comment: Delivered by Schiffwerft Hameln, Germany, on 3 January 1969 and 10 December 1972 respectively.

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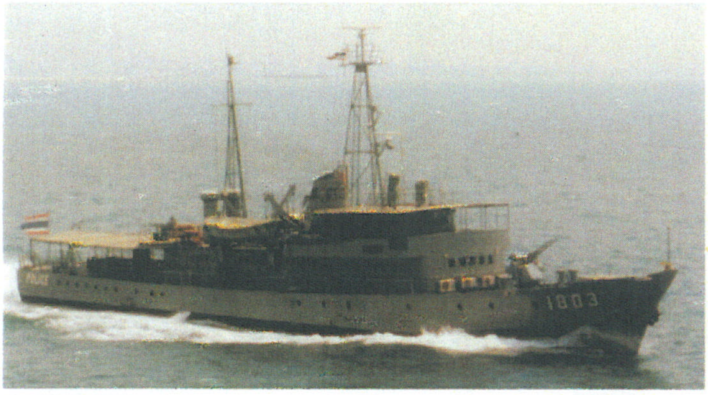

LOPBURI RAMES *6/2003*, Royal Thai Navy* / 0572647

2 SUMIDAGAWA TYPE (COASTAL PATROL CRAFT) (PB)

CHASANYABADEE 1101 **PHROMYOTHEE** 1103

Displacement, tons: 130 full load
Dimensions, feet (metres): 111.5 × 19 × 9.1 *(34 × 5.8 × 2.8)*
Main machinery: 3 Ikegai diesels; 4,050 hp(m) *(2.98 MW)*; 3 shafts
Speed, knots: 32
Complement: 23
Guns: 2—12.7 mm MGs.
Radars: Surface search: Racal Decca; I-band.

Comment: Commissioned in August 1972 and May 1973 respectively.

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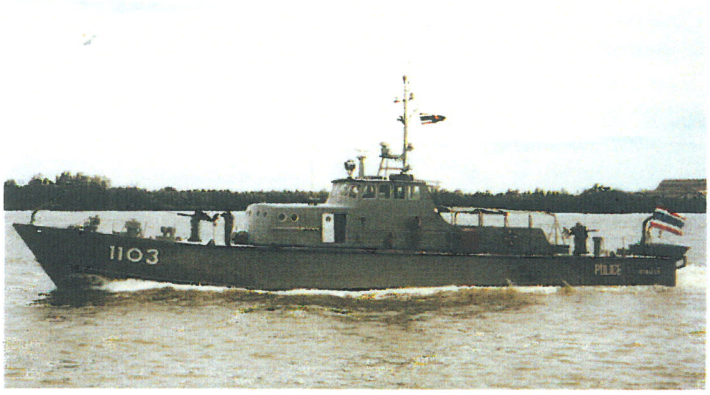

PHROMYOTHEE *1990, Marine Police* / 0080833

1 YOKOHAMA TYPE (COASTAL PATROL CRAFT) (PB)

CHAWENGSAK SONGKRAM 1102

Displacement, tons: 190 full load
Dimensions, feet (metres): 116.5 × 23 × 11.5 *(35.5 × 7 × 3.5)*
Main machinery: 4 Ikegai diesels; 5,400 hp(m) *(3.79 MW)*; 2 shafts
Speed, knots: 32
Complement: 18
Guns: 2 Oerlikon 20 mm.

Comment: Commissioned 13 April 1973. A second of class operates for the Customs with the number 1201.

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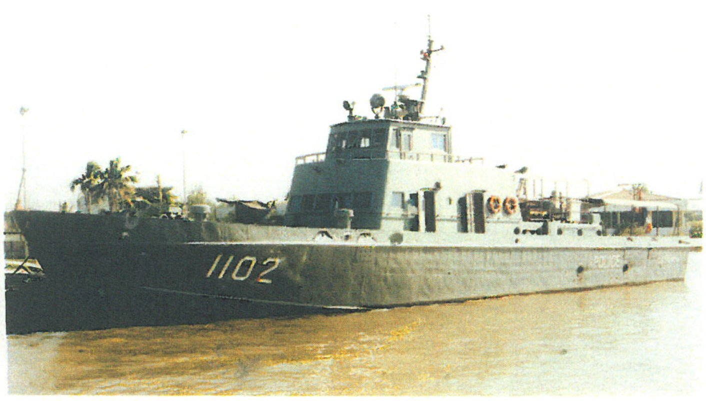

CHAWENGSAK SONGKRAM *1990, Marine Police* / 0080834

1 ITAL THAI MARINE TYPE (COASTAL PATROL CRAFT) (PB)

SRIYANONT 901

Displacement, tons: 52 full load
Dimensions, feet (metres): 90 × 16 × 6.5 *(27.4 × 4.9 × 2)*
Main machinery: 2 Deutz BA16M816 diesels; 2,680 hp(m) *(1.97 MW)* sustained; 2 shafts
Speed, knots: 23
Complement: 14
Guns: 1 Oerlikon 20 mm. 2—7.62 mm MGs.
Radars: Surface search: Racal Decca; I-band.

Comment: Commissioned 12 June 1986.

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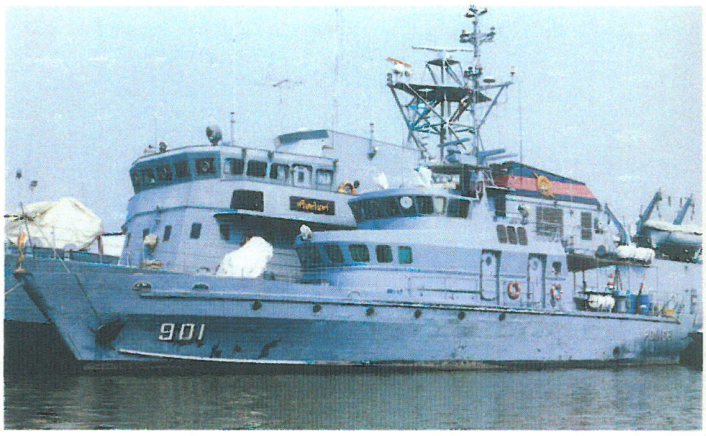

SRIYANONT *12/2001, Thai Navy League* / 0130155

1 BURESPADOONGKIT CLASS (COASTAL PATROL CRAFT) (PB)

BURESPADOONGKIT 813

Displacement, tons: 65 full load
Dimensions, feet (metres): 80.5 × 19.4 × 6 *(24.5 × 5.9 × 1.8)*
Main machinery: 2 SACM UD 23 V12 M5D diesels; 2,534 hp(m) *(1.86 MW)* sustained; 2 shafts
Speed, knots: 28. **Range, miles:** 650 at 20 kt
Complement: 14
Guns: 1 Oerlikon GAM-CO1 20 mm; 2—7.62 mm MGs.

Comment: Built by Matsun, Thailand and commissioned 9 August 1995.

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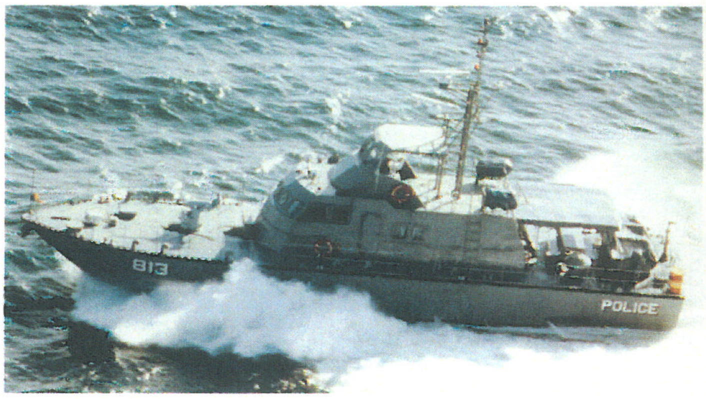

BURESPADOONGKIT *6/1999, Marine Police* / 0080835

3 CUTLASS CLASS (COASTAL PATROL CRAFT) (PB)

PHRAONGKAMROP 807 **PICHARNPHOLAKIT** 808 **RAMINTHRA** 809

Displacement, tons: 34 full load
Dimensions, feet (metres): 65 × 17 × 8.3 *(19.8 × 5.2 × 2.5)*
Main machinery: 3 Detroit 12V-71TA diesels; 1,020 hp(m) *(761 kW)* sustained; 3 shafts
Speed, knots: 25
Complement: 14
Guns: 1 Oerlikon 20 mm. 2—7.62 mm MGs.

Comment: Delivered by Halter Marine, New Orleans, and all commissioned on 9 March 1969. Aluminium hulls.

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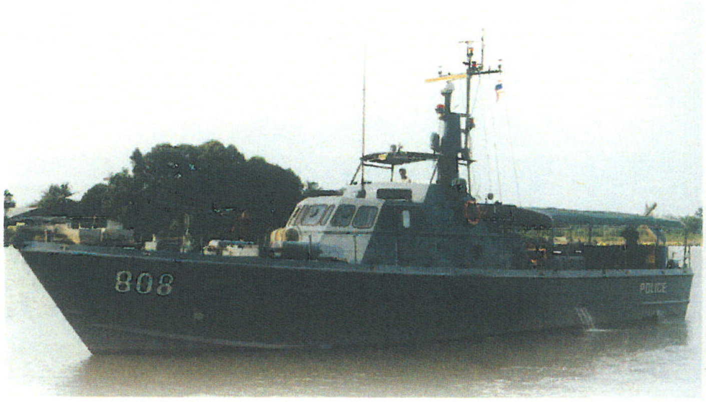


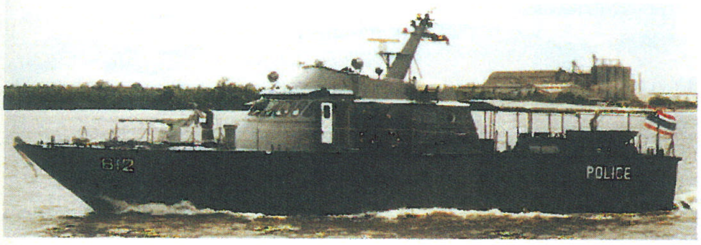
PICHARNPHOLAKIT *6/1999* / 0080836

3 TECHNAUTIC TYPE (COASTAL PATROL CRAFT) (PB)

810-812

Displacement, tons: 50 full load
Dimensions, feet (metres): 88.6 × 19.4 × 6.2 *(27 × 5.9 × 1.9)*
Main machinery: 3 Isotta Fraschini diesels; 2,500 hp(m) *(1.84 MW)*; 3 Castoldi hydrojets
Speed, knots: 27
Complement: 14
Guns: 1 Oerlikon 20 mm GAM-BO1. 2—7.62 mm MGs.

Comment: Delivered by Technautic, Bangkok in 1984. ***VERIFIED***



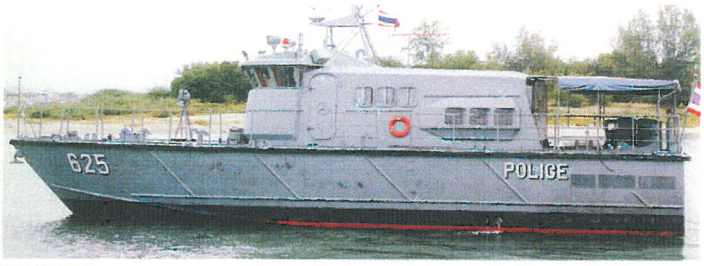
812 *1990, Marine Police* / 0080837

5 ITAL THAI MARINE TYPE (COASTAL PATROL CRAFT) (PB)

625-629

Displacement, tons: 42 full load
Dimensions, feet (metres): 64 × 17.5 × 5 *(19.5 × 5.3 × 1.5)*
Main machinery: 2 MAN D2842LE diesels; 1,350 hp(m) *(992 kW)* sustained; 2 shafts
Speed, knots: 27
Complement: 14
Guns: 1—12.7 mm MG.

Comment: Built in Bangkok 1987-90. Aluminium hulls. More of the class operated by the Fishery Patrol Service. ***VERIFIED***



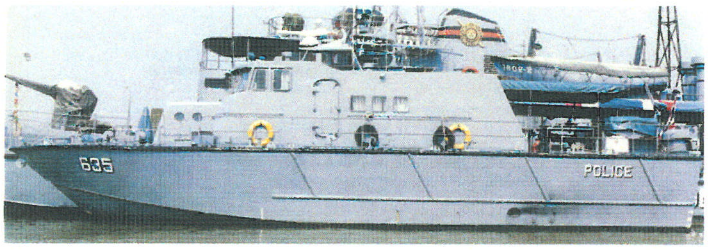
ITAL THAI 625 *6/1999, Marine Police* / 0080838

6 MARSUN TYPE (COASTAL PATROL CRAFT) (PB)

630-635

Displacement, tons: 38 full load
Dimensions, feet (metres): 65.6 × 18.2 × 5 *(20 × 5.6 × 1.5)*
Main machinery: 2 MAN D2840LXE diesels; 1,640 hp(m) *(1.2 MW)* sustained; 2 shafts
Speed, knots: 25
Complement: 11
Guns: 1—12.7 mm MG.

Comment: Built by Marsun, Thailand and commissioned from 2 August 1994. ***VERIFIED***



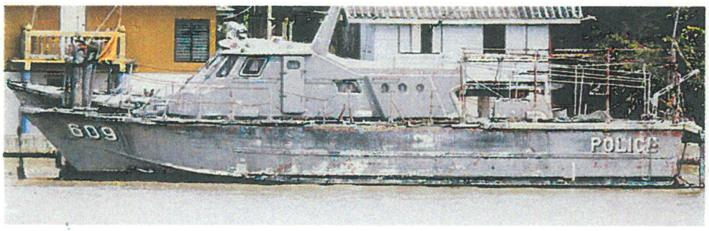
MARSUN 635 *12/2001, Thai Navy League* / 0130154

17 TECHNAUTIC TYPE (COASTAL PATROL CRAFT) (PB)

608-624

Displacement, tons: 30 full load
Dimensions, feet (metres): 60 × 16 × 2.9 *(18.3 × 4.9 × 0.9)*
Main machinery: 2 Isotta Fraschini ID 36 SS 8V diesels; 1,760 hp(m) *(1.29 MW)* sustained; 2 Castoldi hydrojets
Speed, knots: 27
Complement: 11
Guns: 1—12.7 mm MG.

Comment: Built from 1983-87 in Bangkok. Operational status of some of these craft doubtful. ***VERIFIED***



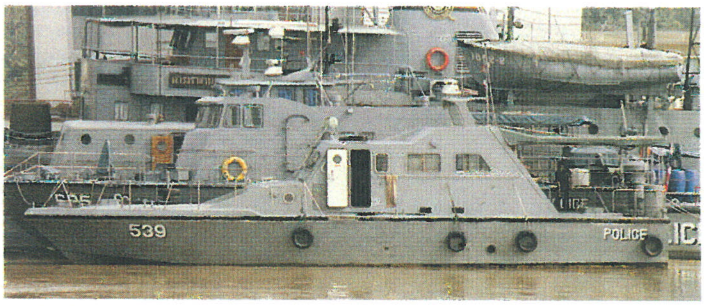
TECHNAUTIC 609 *11/2001, Maritime Photographic* / 0130168

2 MARSUN TYPE (PB)

539-540

Displacement, tons: 30 full load
Dimensions, feet (metres): 57 × 16 × 3 *(17.4 × 4.9 × 0.9)*
Main machinery: 2 Detroit 12V-71TA diesels; 840 hp *(627 kW)* sustained; 2 shafts
Speed, knots: 25
Complement: 8
Guns: 1—12.7 mm MG.

Comment: Built in Thailand. Both commissioned 26 March 1986. ***VERIFIED***



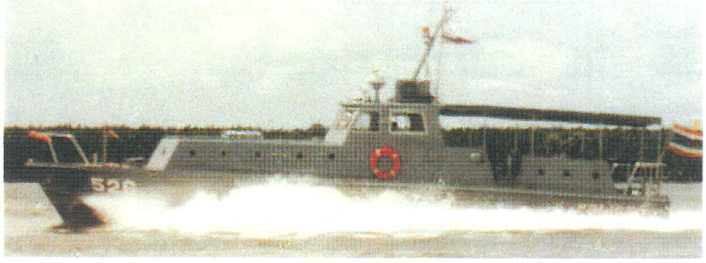
MARSUN 539 *11/2001, Maritime Photographic* / 0130169

26 SUMIDAGAWA TYPE (RIVER PATROL CRAFT) (PBR)

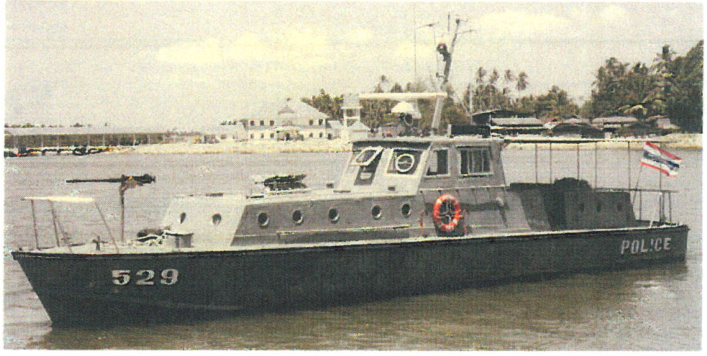
513-538

Displacement, tons: 18 full load
Dimensions, feet (metres): 54.1 × 12.5 × 2.3 *(16.5 × 3.8 × 0.7)*
Main machinery: 2 Cummins diesels; 800 hp *(597 kW)*; 2 shafts
Speed, knots: 23
Complement: 6
Guns: 1—12.7 mm MG.

Comment: First 21 built by Sumidagawa, last five by Captain Co, Thailand 1978-79. ***UPDATED***



SUMIDAGAWA 526 *6/2003*, Royal Thai Navy* / 0572646



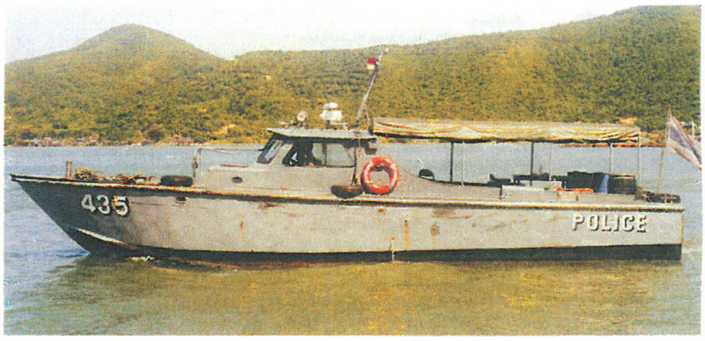
SUMIDAGAWA 529 *6/1999, Marine Police* / 0080841

20 CAMCRAFT TYPE (RIVER PATROL CRAFT) (PBR)

415-440 series

Displacement, tons: 13 full load
Dimensions, feet (metres): 40 × 12 × 3.2 *(12.2 × 3.7 × 1)*
Main machinery: 2 Detroit diesels; 540 hp *(403 kW)*; 2 shafts
Speed, knots: 25
Complement: 6

Comment: Delivered by Camcraft, Louisiana. Aluminium hulls. Numbers uncertain. ***VERIFIED***



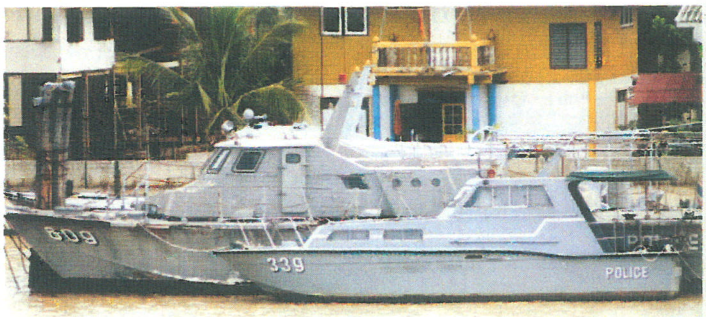
CAMCRAFT 435 *6/1999, Marine Police* / 0080842

34 RIVER PATROL CRAFT (PBR)

Displacement, tons: 5 full load
Dimensions, feet (metres): 37 × 11 × 6 *(11.3 × 3.4 × 1.8)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 25
Complement: 4

Comment: Numbers in the 300 series. Details given are for *339* built in 1990. The remainder are similar.

VERIFIED



RIVER PATROL CRAFT 339 (alongside Technautic 609)
7/2000 / 0106613

Togo

Country Overview

Formerly French Togoland, the Republic of Togo gained full independence in 1960 having rejected proposals to be united with Ghana. Situated in west Africa, it has an area of 21,925 square miles and borders to the east with Benin and to the west with Ghana. Togo has a short coastline of 30 n miles with the Gulf of Guinea. Lomé is the capital, largest town and principal port. Togo is the only coastal state to claim territorial seas of 30 n miles. A 200 n mile Exclusive Economic Zone (EEZ) is also claimed but this has not been defined by boundary agreements.

Headquarters Appointments

Commanding Officer, Navy:
Commander Lucien Laval

Personnel

(a) 2004: 120
(b) Conscription (2 years)

Bases

Lomé

PATROL FORCES

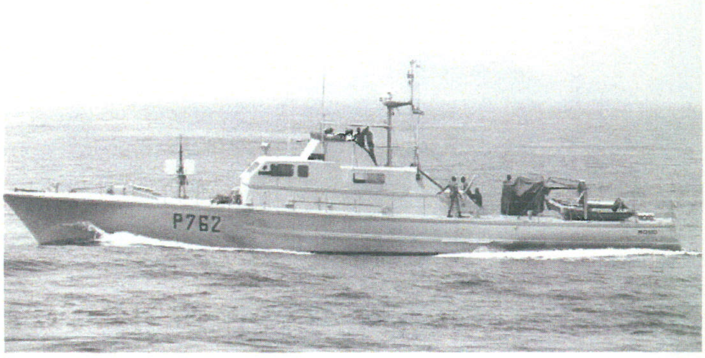
2 COASTAL PATROL CRAFT (PB)

Name	*No*	*Builders*	*Launched*
KARA	P 761	Chantiers Navals de l'Esterel, Cannes	18 May 1976
MONO	P 762	Chantiers Navals de l'Esterel, Cannes	16 June 1976

Displacement, tons: 80 full load
Dimensions, feet (metres): 105 × 19 × 5.3 *(32 × 5.8 × 1.6)*
Main machinery: 2 MTU MB 12V 493 TY60 diesels; 2,000 hp(m) *(1.47 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,500 at 15 kt
Complement: 17 (1 officer)
Missiles: SSM: Aerospatiale SS 12M; wire-guided to 5 km *(3 n miles)* subsonic; warhead 30 kg.
Guns: 1 Bofors 40 mm/70. 1 Oerlikon 20 mm.
Radars: Surface search: Decca 916; I-band.

Comment: Both craft operational.

VERIFIED



MONO *6/1998* / 0050252

Tonga

Country Overview

A former British protectorate, the Kingdom of Tonga became a sovereign state in 1970. Situated in the southwestern Pacific Ocean some 1,080 n miles northeast of New Zealand, the country consists of more than 170 islands and islets running generally north-south. There are three main groups, Tongatapu, Ha'apai and Vava'u, and several outlying islands. Nuku'alofa, on Tongatapu Island, is the capital, largest town and principal port. Territorial seas (12 n miles) are claimed. An Exclusive Economic Zone (EEZ) (200 n miles) is claimed but limits have not been fully defined by boundary agreements.

Headquarters Appointments

Commander Defence Services:
Colonel T Utaátu
Commanding Officer, Navy:
Commander Toni Fonokalafi

Personnel

2004: 115

Bases

Touliki Base, Nuku'alofa (HMNB *Masefield*)

Prefix to Ships' Names

VOEA (Vaka O Ene Afio)

PATROL FORCES

Notes: A Beech 18 aircraft was acquired in May 1995 for maritime surveillance.

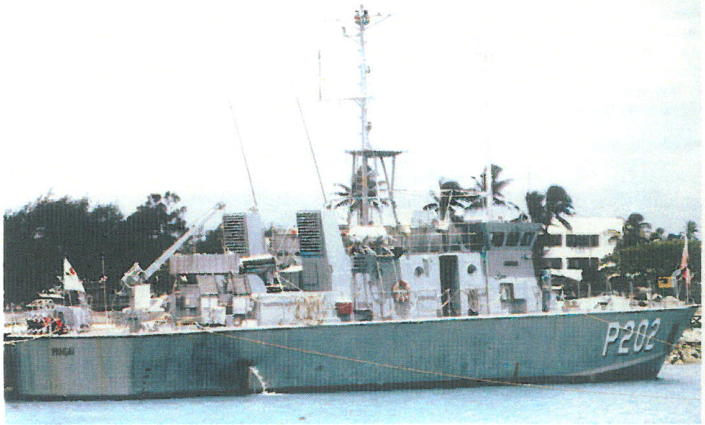
3 PACIFIC CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
NEIAFU	P 201	Australian Shipbuilding Industries	28 Oct 1989
PANGAI	P 202	Australian Shipbuilding Industries	30 June 1990
SAVEA	P 203	Australian Shipbuilding Industries	23 Mar 1991

Displacement, tons: 162 full load
Dimensions, feet (metres): 103.3 × 26.6 × 6.9 *(31.5 × 8.1 × 2.1)*
Main machinery: 2 Caterpillar 3516TA diesels; 2,820 hp *(2.1 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 2,500 at 12 kt
Complement: 17 (3 officers)
Guns: 2—12.7 mm MGs.
Radars: Surface search: Furuno 1101; I-band.

Comment: Part of the Pacific Forum Australia Defence co-operation. First laid down 30 January 1989, second 2 October 1989, third February 1990. *Savea* has a hydrographic survey capability. Following half-life refits 1998-99 and the decision of the Australian government to extend the Pacific Patrol Boat programme, *Neiafu*, *Pangai* and *Savea* will be due life-extension refits in 2006, 2007 and 2007 respectively.

UPDATED



PANGAI *2/2003, Chris Sattler* / 0558665

AUXILIARIES

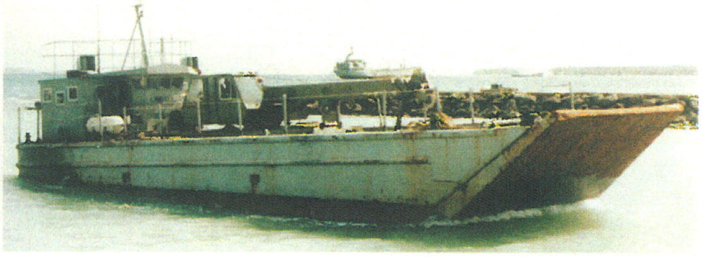
1 LCM

Name	*No*	*Builders*	*Commissioned*
LATE (ex-*1057*)	C 315	North Queensland, Cairns	1 Sep 1982

Displacement, tons: 116 full load
Dimensions, feet (metres): 73.5 × 21 × 3.3 *(22.4 × 6.4 × 1)*
Main machinery: 2 Detroit 12V-71 diesels; 680 hp *(507 kW)* sustained; 2 shafts
Speed, knots: 10. **Range, miles:** 480 at 10 kt
Complement: 5
Cargo capacity: 54 tons
Guns: 1—7.62 mm MG can be carried.
Radars: Surface search: Koden MD 305; I-band.

Comment: Acquired from the Australian Army for inter-island transport.

VERIFIED



LATE *6/1999, Tongan Navy* / 0084414

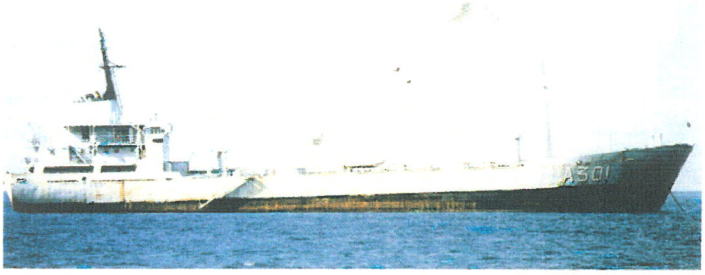
1 TANKER (AOTL)

Name	*No*	*Builders*	*Commissioned*
LOMIPEAU (ex-*Punaruu*, ex-*Bow Cecil*)	A 301 (ex-A 632)	Norway	16 Nov 1971

Displacement, tons: 4,050 full load
Dimensions, feet (metres): 272.2 × 45.6 × 19 *(83 × 13.9 × 5.8)*
Main machinery: 2 Normo LSMC-8 diesels; 2,050 hp(m) *(1.51 MW)*; 1 shaft; cp prop; bow thruster
Speed, knots: 12. **Range, miles:** 8,000 at 11 kt
Complement: 28 (4 officers)
Cargo capacity: 2,500 m³
Radars: Navigation: Racal Decca 1226; I-band.

Comment: Transferred from France on 1 October 1995 and recommissioned on 30 November 1995 after being modified at Tahiti. Naval manned but the intention is to train a civilian crew.

UPDATED



LOMIPEAU *2/2003*, Chris Sattler* / 0558664

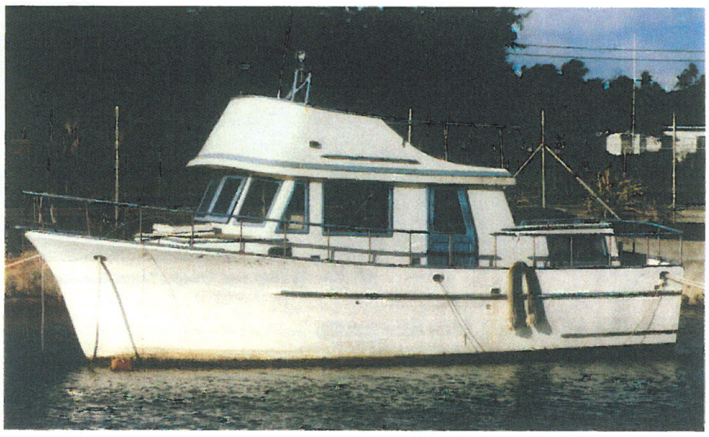
1 ROYAL YACHT (PC)

TITILUPE

Displacement, tons: 10 full load
Dimensions, feet (metres): 34.1 × 9.8 × 3.3 *(10.4 × 3 × 1)*
Main machinery: 1 Ford diesel; 1 shaft
Speed, knots: 8
Complement: 4

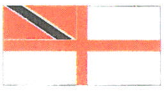
Comment: GRP. Also used as a patrol craft.

VERIFIED



TITILUPE *12/1999, van Ginderen Collection* / 0106615

Trinidad and Tobago



Country Overview

Trinidad and Tobago gained independence in 1962 and became a republic in 1976. The country lies at the southern end of the Lesser Antilles chain and comprises the main islands of Trinidad (1,864 square miles), Tobago (116 square miles) and 21 minor islands and rocks. Trinidad is close to the northeastern coast of Venezuela and the mouth of the Orinoco River. The capital, largest town, and principal port is Port-of-Spain, Trinidad. An archipelagic state, territorial seas (12 n miles) are claimed. While a 200 n mile Exclusive Economic Zone (EEZ) has been claimed, the limits have only been partly defined by boundary agreements.

Headquarters Appointments

Commanding Officer, Coast Guard:
Commander Francis Weekes, ED

Aircraft

The Coast Guard operates three Cessna (Types 172, 402B and 310R) for surveillance and two C26B acquired in 1999. These aircraft can be backed by Air Division Gazelle and Sikorsky S-76 helicopters when necessary.

Personnel

(a) 2004: 650 (55 officers)
(b) Voluntary service

Bases

Staubles Bay (HQ)
Hart's Cut, Tobago, Point Fortin (all from 1989)
Piarco (Air station), Cedros (from 1992)
Galeota (from 1995)

Prefix to Ships' Names

TTS

COAST GUARD

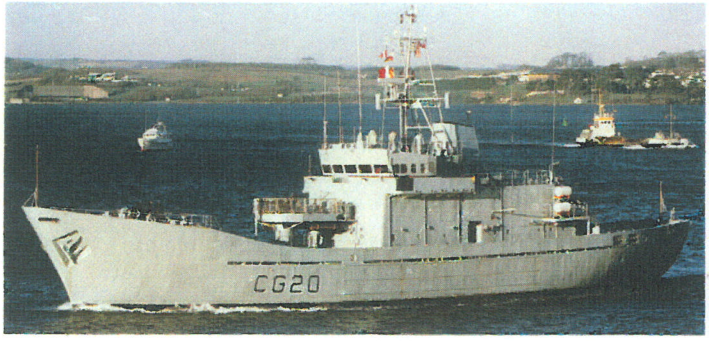
1 ISLAND CLASS (PBO)

Name	*No*	*Builders*	*Commissioned*
NELSON (ex-*Orkney*)	CG 20 (ex-P 299)	Hall Russell	25 Feb 1977

Displacement, tons: 925 standard; 1,260 full load
Dimensions, feet (metres): 176 wl; 195.3 oa × 36 × 15 *(53.7; 59.5 × 11 × 4.5)*
Main machinery: 2 Ruston 12RKC diesels; 5,640 hp *(4.21 MW)* sustained; 1 shaft; cp prop
Speed, knots: 16.5. **Range, miles:** 7,000 at 12 kt
Complement: 35 (5 officers)
Guns: 2—7.62 mm MGs can be carried.
Radars: Navigation: Kelvin Hughes Type 1006; I-band.

Comment: Transferred from the UK Navy on 18 December 2000.

UPDATED



NELSON *1/2001, H M Steele* / 0106616

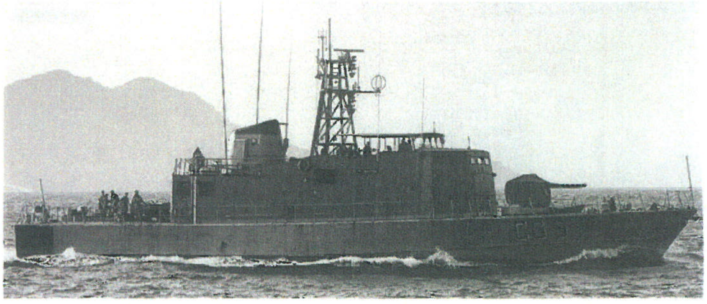
2 TYPE CG 40 (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
BARRACUDA	CG 5	Karlskronavarvet	15 June 1980
CASCADURA	CG 6	Karlskronavarvet	15 June 1980

Displacement, tons: 210 full load
Dimensions, feet (metres): 133.2 × 21.9 × 5.2 *(40.6 × 6.7 × 1.6)*
Main machinery: 2 Paxman Valenta 16CM diesels; 6,700 hp *(5 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 3,000 at 15 kt
Complement: 25
Guns: 1 Bofors 40 mm/70. 1 Oerlikon 20 mm.
Weapons control: Optronic GFCS.
Radars: Surface search: Racal Decca 1226; I-band.

Comment: Ordered in Sweden mid-1978. Laid down early 1979. Fitted with foam-cannon oil pollution equipment and for oceanographic and hydrographic work. Nine spare berths. The hull is similar to Swedish 'Spica' class but with the bridge amidships. One refitted in 1988, the other in 1989. *Cascadura* refitted again in 1998/99.

UPDATED



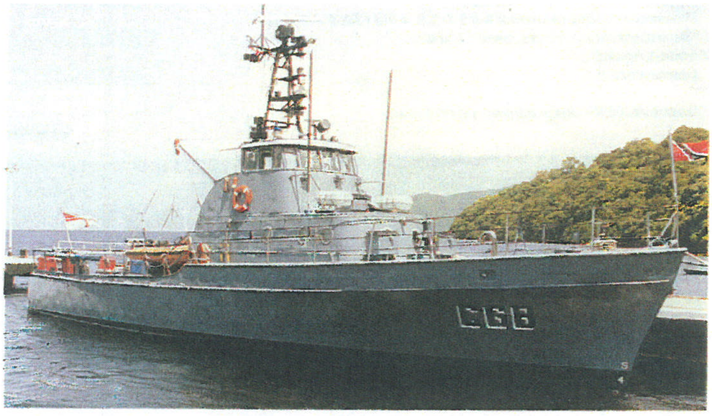
CASCADURA *1/1994, Maritime Photographic*

4 POINT CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
COROZAL POINT (ex-*Point Heyer*)	CG 7 (ex-82369)	J Martinac, Tacoma	3 Aug 1967
CROWN POINT (ex-*Point Bennett*)	CG 8 (ex-82351)	Coast Guard Yard, Curtis Bay	19 Dec 1966
GALERA POINT (ex-*Point Bonita*)	CG 9 (ex-82347)	J Martinac, Tacoma	12 Sep 1966
BARCOLET POINT (ex-*Point Highland*)	CG 10 (ex-82333)	Coast Guard Yard, Curtis Bay	27 June 1962

Displacement, tons: 66 full load
Dimensions, feet (metres): 83 × 17.2 × 5.8 *(25.3 × 5.2 × 1.8)*
Main machinery: 2 Caterpillar 3412 diesels; 1,600 hp *(1.19 MW)*; 2 shafts
Speed, knots: 23. **Range, miles:** 1,500 at 8 kt
Complement: 10
Guns: 2—7.62 mm MGs.
Radars: Surface search: Raytheon SPS-64(V)I and Raytheon SPS 69AN; I-band.

Comment: CG 7 and CG 8 transferred from US Coast Guard 12 February 1999 and the third on 14 November 2000. The fourth transferred on 24 July 2001. ***VERIFIED***



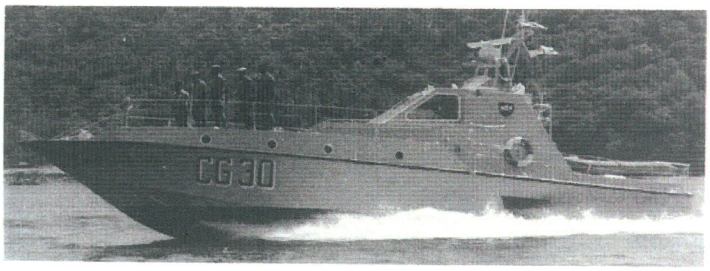
CROWN POINT *6/1999, Trinidad and Tobago Coast Guard* / 0080846

4 SOUTER WASP 17 METRE CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
PLYMOUTH	CG 27	WA Souter, Cowes	27 Aug 1982
CARONI	CG 28	WA Souter, Cowes	27 Aug 1982
GALEOTA	CG 29	WA Souter, Cowes	27 Aug 1982
MORUGA	CG 30	WA Souter, Cowes	27 Aug 1982

Displacement, tons: 20 full load
Dimensions, feet (metres): 55.1 × 13.8 × 4.6 *(16.8 × 4.2 × 1.4)*
Main machinery: 2 MANN 8V diesels; 1,470 hp *(1.1 MW)*; 2 shafts
Speed, knots: 32. **Range, miles:** 500 at 18 kt
Complement: 7 (2 officers)
Guns: 1—7.62 mm MG.
Radars: Surface search: Raytheon SPS 69AN; I-band.

Comment: GRP hulls. All refitted from September 1997 with new engines. ***VERIFIED***



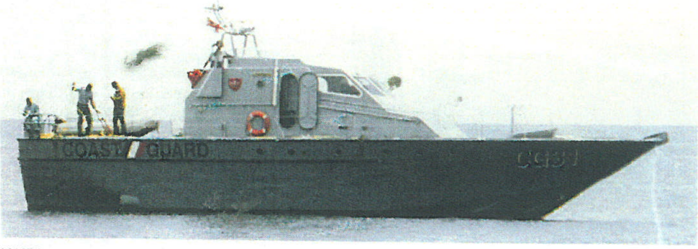
MORUGA *6/1996, Trinidad and Tobago Coast Guard*

2 WASP 20 METRE CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
KAIRI (ex-*Sea Bird*)	CG 31	WA Souter, Cowes	Dec 1982
MORIAH (ex-*Sea Dog*)	CG 32	WA Souter, Cowes	Dec 1982

Displacement, tons: 32 full load
Dimensions, feet (metres): 65.8 × 16.5 × 5 *(20.1 × 5 × 1.5)*
Main machinery: 2 MANN 12V diesels; 2,400 hp *(1.79 MW)*; 2 shafts
Speed, knots: 30. **Range, miles:** 450 at 30 kt
Complement: 6 (2 officers)
Guns: 2—7.62 mm MGs.
Radars: Surface search: Decca 150; I-band.

Comment: Ordered 30 September 1981. Aluminium alloy hull. Transferred from the Police in June 1989. New engines in 1999. ***VERIFIED***



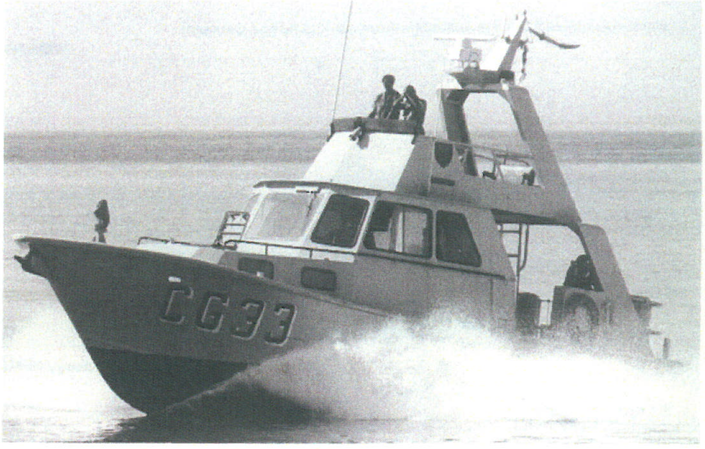
KAIRI *7/2001, Margaret Organ* / 0114370

1 SWORD CLASS (COASTAL PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
MATELOT (ex-*Sea Skorpion*)	CG 33	SeaArk Marine	May 1979

Displacement, tons: 15.5 full load
Dimensions, feet (metres): 44.9 × 13.4 × 4.3 *(13.7 × 4.1 × 1.3)*
Main machinery: 2 GM diesels; 850 hp *(634 kW)*; 2 shafts
Speed, knots: 28. **Range, miles:** 500 at 20 kt
Complement: 6
Guns: 1—7.62 mm MG.
Radars: Surface search: Decca 150; I-band.

Comment: Two transferred from the Police 30 June 1989, one scrapped in 1990. Refitted in 1998. ***VERIFIED***



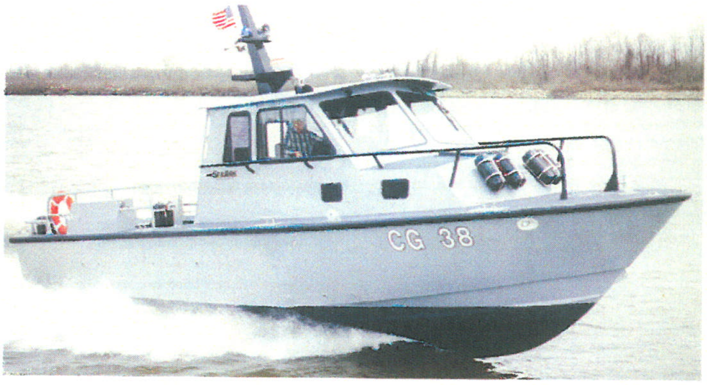
MATELOT *1/1994, Maritime Photographic*

3 DAUNTLESS CLASS (PB)

Name	*No*	*Builders*	*Commissioned*
SOLDADO	CG 38	SeaArk Marine, Monticello	14 June 1995
ROXBOROUGH	CG 39	SeaArk Marine, Monticello	14 June 1995
MAYARO	CG 40	SeaArk Marine, Monticello	14 June 1995

Displacement, tons: 11 full load
Dimensions, feet (metres): 40 × 14 × 4.3 *(12.2 × 4.3 × 1.3)*
Main machinery: 2 Caterpillar 3208TA diesels; 870 hp *(650 kW)* sustained; 2 shafts
Speed, knots: 27. **Range, miles:** 600 at 18 kt
Complement: 4
Guns: 1—7.62 mm MG.
Radars: Surface search: Raytheon R40; I-band.

Comment: Several of these craft provided to Caribbean navies through FMS funding. Used as utility boats. ***VERIFIED***

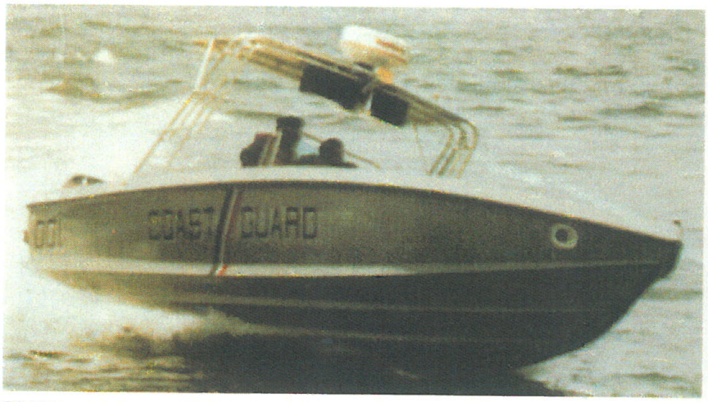


SOLDADO *6/1995, SeaArk Marine* / 0080848

2 BOWEN CLASS and 3 RHIB (FAST INTERCEPTOR CRAFT) (PBF)

CG 001 **CG 002** **CG 003-005**

Comment: The first pair are 31 ft fast patrol boats acquired in May 1991. Capable of 40 kt. The last three are 25 ft RHIBs with twin Johnson outboards acquired from the US in 1993. Capable of 45 kt. ***UPDATED***



CG 001 *1991, Trinidad and Tobago Coast Guard* / 0080849

2 AUXILIARY VESSELS

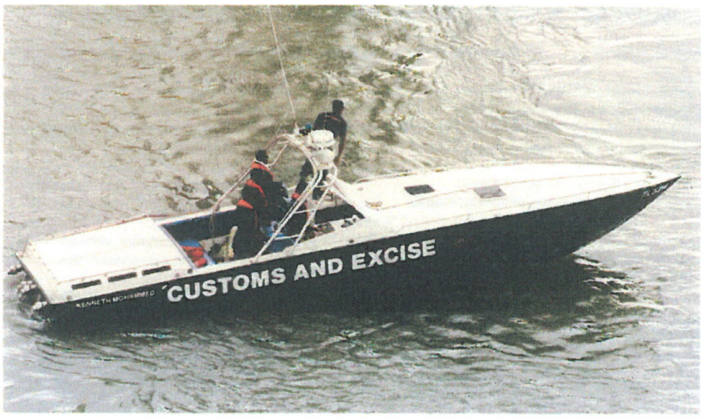
NAPARIMA (ex-*CG 26*) A 01 **REFORM** A 04

Comment: Used for Port Services and other support functions.

VERIFIED

CUSTOMS

Notes: Among other craft, the Customs service operate a High Speed Interception craft *Kenneth Mohammed*.



KENNETH MOHAMMED
2/2001, van Ginderen Collection / 0114369

Tunisia

Country Overview

Formerly a French protectorate, the Republic of Tunisia gained independence in 1957. Situated in northern Africa, it has an area of 63,170 square miles and is bordered to the west by Algeria and to the south by Libya. It has a 619 n mile coastline with the Mediterranean Sea. The capital and largest city is the seaport of Tunis. There are further ports at Bizerta, Sousse, Sfax and Gabès while as-Sukhayrah, specialises in petroleum bunkering. Territorial seas (12 n miles) are claimed. An EEZ has not been claimed.

Headquarters Appointments

Naval Chief of Staff:
Commodore Tarek Faouzi El Arbi

Bases

Bizerte, Sfax, La Goulette, Kelibia

Personnel

(a) 2004: 4,800 officers and men (including 800 conscripts)
(b) 1 year's national service

PATROL FORCES

Notes: Two 30 m and two 12 m patrol craft are required as soon as funds are available.

3 COMBATTANTE III M CLASS
(FAST ATTACK CRAFT—MISSILE) (PGGF)

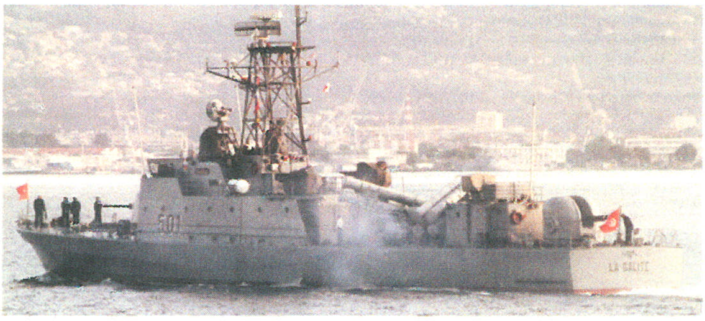
Name	*No*	*Builders*	*Launched*	*Commissioned*
LA GALITÉ	501	CMN, Cherbourg	16 June 1983	27 Feb 1985
TUNIS	502	CMN, Cherbourg	27 Oct 1983	27 Mar 1985
CARTHAGE	503	CMN, Cherbourg	24 Jan 1984	29 Apr 1985

Displacement, tons: 345 standard; 425 full load
Dimensions, feet (metres): 183.7 × 26.9 × 7.2 *(56 × 8.2 × 2.2)*
Main machinery: 4 MTU 20V 538 TB93 diesels; 18,740 hp(m) *(13.8 MW)* sustained; 4 shafts
Speed, knots: 38.5. **Range, miles:** 700 at 33 kt; 2,800 at 10 kt
Complement: 35

Missiles: SSM: 8 Aerospatiale MM 40 Exocet (2 quad) launchers; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 1 OTO Melara 3 in *(76 mm)*/62; 55-65 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Breda 40 mm/70 (twin); 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
4 Oerlikon 30 mm/75 (2 twin); 650 rds/min to 10 km *(5.5 n miles)*; weight of shell 1 kg or 0.36 kg.
Countermeasures: Decoys: 1 CSEE Dagaie trainable launcher; IR flares and chaff.
ESM: Thomson-CSF; DR 2000; intercept.
Combat data systems: Tavitac action data automation.
Weapons control: 2 CSEE Naja optronic directors for 30 mm. Thomson-CSF Vega II for SSM, 76 mm and 40 mm.
Radars: Air/surface search: Thomson-CSF Triton S; G-band; range 33 km *(18 n miles)* for 2 m² target.
Fire control: Thomson-CSF Castor II; I/J-band; range 31 km *(17 n miles)* for 2 m² target.

Programmes: Ordered 27 June 1981.
Operational: CSEE Sylosat navigation system. All three ships operating but reported in need of refits.

VERIFIED



LA GALITÉ *5/2002, Schaeffer/Marsan* / 0533310

TUNIS *5/2002, Schaeffer/Marsan* / 0533309

3 BIZERTE CLASS (TYPE PR 48) (LARGE PATROL CRAFT) (PBOM)

Name	*No*	*Builders*	*Commissioned*
BIZERTE	P 301	SFCN, Villeneuve-la-Garenne	10 July 1970
HORRIA (ex-*Liberté*)	P 302	SFCN, Villeneuve-la-Garenne	Oct 1970
MONASTIR	P 304	SFCN, Villeneuve-la-Garenne	25 Mar 1975

Displacement, tons: 250 full load
Dimensions, feet (metres): 157.5 × 23.3 × 7.5 *(48 × 7.1 × 2.3)*
Main machinery: 2 MTU 16V 652 TB81 diesels; 4,600 hp(m) *(3.4 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 2,000 at 16 kt
Complement: 34 (4 officers)
Missiles: SSM: 8 Aerospatiale SS 12M; wire-guided to 5.5 km *(3 n miles)* subsonic; warhead 30 kg.
Guns: 4—37 mm/63 (2 twin). 2—14.5 mm MGs.
Radars: Surface search: Thomson-CSF DRBN 31; I-band.

Comment: First pair ordered in 1968, third in August 1973. Guns changed in 1994. All are active.

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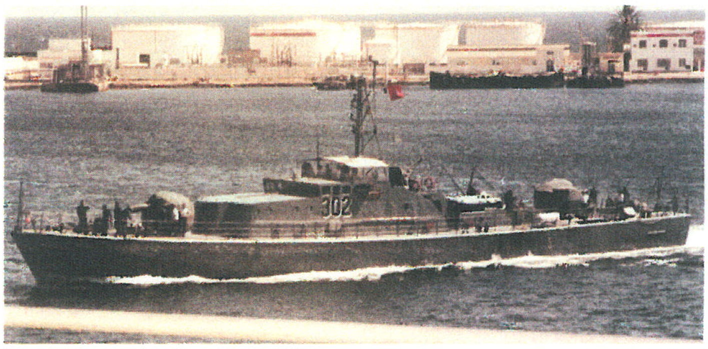


HORRIA *10/2001* / 0533311

BIZERTE *3/2002, van Ginderen Collection* / 0141859

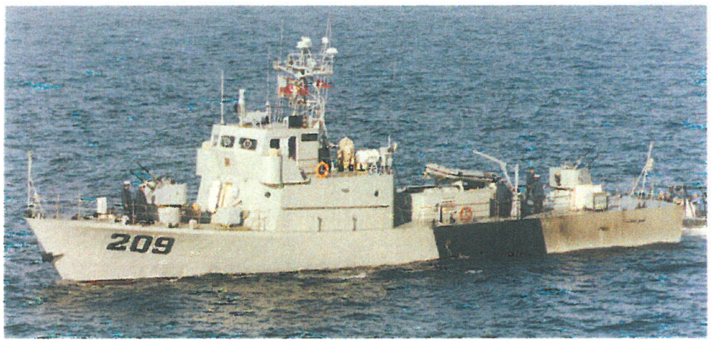
3 MODIFIED HAIZHUI CLASS (LARGE PATROL CRAFT) (PB)

UTIQUE P 207 **JERBA** P 208 **KURIAT** P 209

Displacement, tons: 120 full load
Dimensions, feet (metres): 114.8 × 17.7 × 5.9 *(35 × 5.4 × 1.8)*
Main machinery: 4 MWM TB 604 BV12 diesels; 4,400 hp(m) *(3.22 MW)* sustained; 4 shafts
Speed, knots: 28. **Range, miles:** 750 at 17 kt
Complement: 39
Guns: 4 China 25 mm/80 (2 twin).
Radars: Surface search: Pot Head; I-band.

Comment: Delivered from China in March 1994. These craft resemble a smaller version of the 'Haizhui' class in service with the Chinese Navy but with a different armament and some superstructure changes. Built to Tunisian specifications.

VERIFIED



KURIAT *4/1995* / 0080852

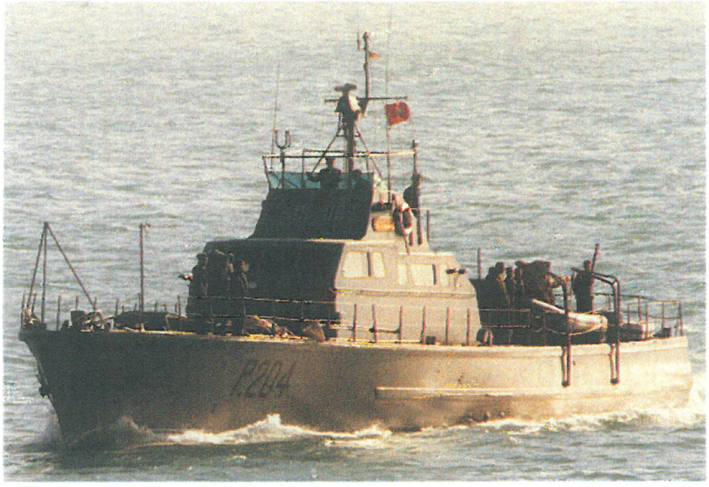
4 COASTAL PATROL CRAFT (PB)

Name	*No*	*Builders*	*Commissioned*
ISTIKLAL (ex-*VC 11, P 761*)	P 201	Ch Navals de l'Esterel	Apr 1957
JOUMHOURIA	P 202	Ch Navals de l'Esterel	Jan 1961
AL JALA	P 203	Ch Navals de l'Esterel	Nov 1963
REMADA	P 204	Ch Navals de l'Esterel	July 1967

Displacement, tons: 60 standard; 80 full load
Dimensions, feet (metres): 104 × 19 × 5.3 *(31.5 × 5.8 × 1.6)*
Main machinery: 2 MTU MB 12V 493 TY70 diesels; 2,200 hp(m) *(1.62 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,500 at 15 kt
Complement: 17 (3 officers)
Guns: 2 Oerlikon 20 mm.
Radars: Surface search: Racal Decca 1226; I-band.

Comment: *Istiklal* transferred from France March 1959. Wooden hulls. At least one may belong to the Coast Guard.

VERIFIED



REMADA *4/1997* / 0019295

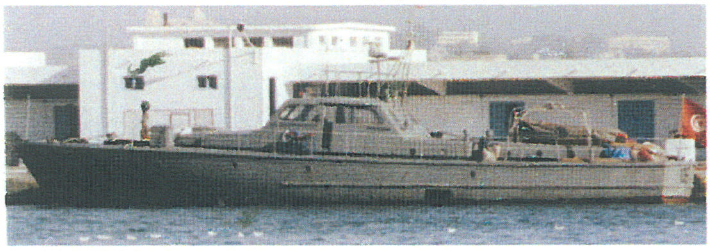
6 COASTAL PATROL CRAFT (PB)

V 101-106

Displacement, tons: 38 full load
Dimensions, feet (metres): 83 × 15.6 × 4.2 *(25 × 4.8 × 1.3)*
Main machinery: 2 Detroit 12V-71TA diesels; 840 hp *(627 kW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 23. **Range, miles:** 900 at 15 kt
Complement: 11
Guns: 1 Oerlikon 20 mm.
Radars: Surface search: Racal Decca 1226; I-band.

Comment: Built by Chantiers Navals de l'Esterel and commissioned in 1961-63. Two further craft of the same design *(Sabaq el Bahr* T 2 and *Jaouel el Bahr* T 1) but unarmed were transferred to the Fisheries Administration in 1971-same builders. Refitted in 1997/98. *V 102* is Coast Guard.

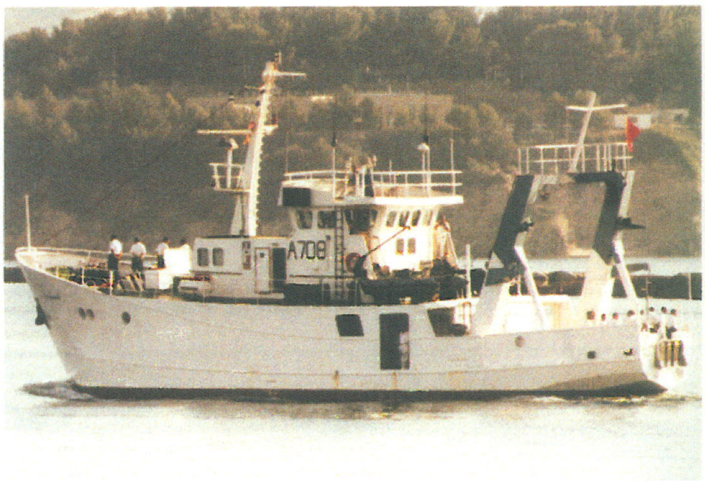
VERIFIED



V 106 *1/1995* / 0080853

TRAINING/SURVEY SHIPS

Notes: *El Jem*, a converted fishing vessel, is used for divers' training.



EL JEM *7/2002, Schaeffer/Marsan* / 0533312

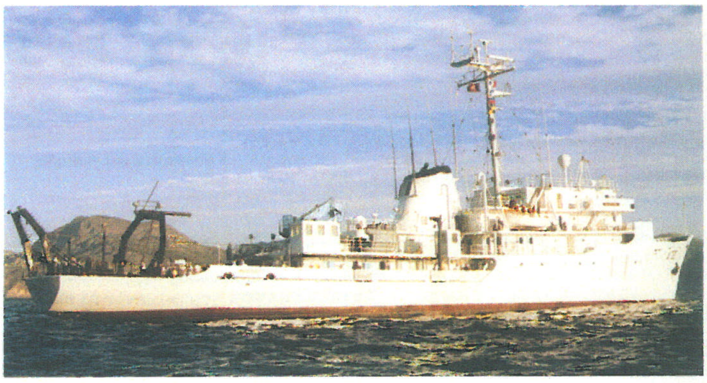
1 WILKES CLASS (AGS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
KHAIREDDINE (ex-*Wilkes*)	A 700 (ex-T-AGS 33)	Defoe SB Co, Bay City, MI	31 July 1969	28 June 1971

Displacement, tons: 2,843 full load
Dimensions, feet (metres): 285.3 × 48 × 15.1 *(87 × 14.6 × 4.6)*
Main machinery: Diesel-electric; 2 Alco diesel generators; 1 Westinghouse/GE motor; 3,600 hp *(2.69 MW)*; 1 shaft; bow thruster; 350 hp *(261 kW)*
Speed, knots: 15. **Range, miles:** 8,000 at 13 kt
Complement: 37
Radars: Navigation: RM 1650/9X; I-band.

Comment: Decommissioned on 29 August 1995 and transferred from the USA by grant aid on 29 September 1995. Designed specifically for surveying operations. Bow propulsion unit for precise manoeuvrability and station keeping. Second of class planned for transfer but not confirmed.

VERIFIED



KHAIREDDINE *7/2001, Diego Quevedo* / 0126191

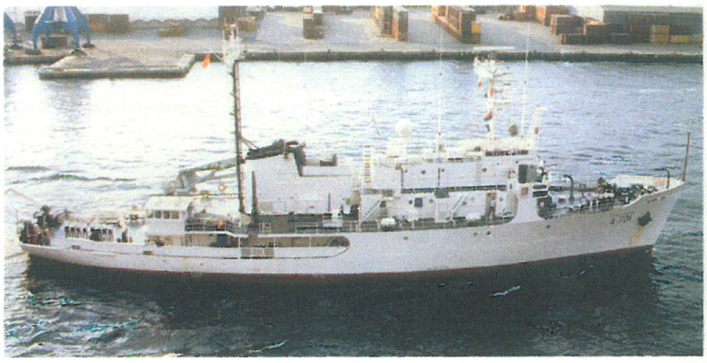
1 ROBERT D CONRAD CLASS (AGOR/AX)

Name	*No*	*Builders*	*Launched*	*Commissioned*
N N O SALAMMBO (ex-*De Steiguer*)	A 701 (ex-T-AGOR 12)	Northwest Iron Works, Portland	13 June 1966	28 Feb 1969

Displacement, tons: 1,370 full load
Dimensions, feet (metres): 208.9 × 40 × 15.3 *(63.7 × 12.2 × 4.7)*
Main machinery: Diesel-electric; 2 Cummins diesel generators; 1 motor; 1,000 hp *(746 kW)*; 1 shaft; bow thruster; 350 hp *(257 kW)*
Speed, knots: 13. **Range, miles:** 12,000 at 12 kt
Complement: 40
Radars: Navigation: Raytheon 1650/6X; I-band.

Comment: Transferred from USA on 2 November 1992 and recommissioned on 11 February 1993. Built as an oceanographic research ship. Special features include a 10 ton boom, and a gas turbine for quiet propulsion up to 6 kt. Used primarily for training having replaced the frigate *Inkadh*, which is now an accommodation hulk.

VERIFIED



N N O SALAMMBO *7/1997, Camil Busquets i Vilanova* / 0019296

AUXILIARIES

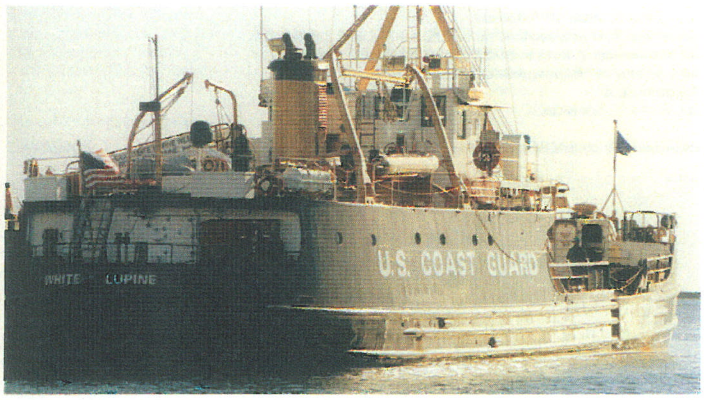
2 WHITE SUMAC CLASS (BUOY TENDERS) (ABU)

Name	*No*	*Launched*	*Recommissioned*
TABARKA (ex-*White Heath*)	— (ex-WLM 545)	21 July 1943	31 Mar 1998
TURQUENNESS (ex-*White Lupine*)	— (ex-WLM 546)	28 July 1943	31 Mar 1998

Displacement, tons: 485 full load
Dimensions, feet (metres): 133 × 31 × 9 *(40.5 × 9.5 × 2.7)*
Main machinery: 2 Caterpillar diesels; 600 hp *(448 kW)*; 2 shafts
Speed, knots: 9
Complement: 24
Radars: Navigation: Raytheon; I-band.

Comment: Former US Coast Guard vessels transferred by gift on 10 June 1998. Arrived in Tunisia one month later.

VERIFIED



TURQUENNESS (US colours) *9/1997, Harald Carstens /* 0012986

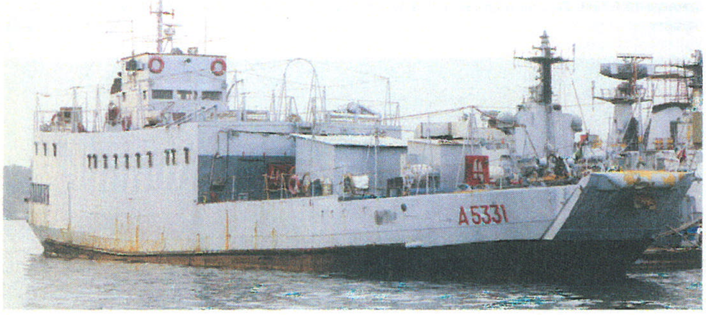
0 + 1 LCT 3 CLASS (REPAIR SHIP) (ARL)

— (ex-MOC 1204) — (ex-A 5334)

Displacement, tons: 350 standard; 640 full load
Dimensions, feet (metres): 192 × 31 × 7 *(58.6 × 9.5 × 2.1)*
Main machinery: 2 diesels; 1,000 hp *(746 kW)*; 2 shafts
Speed, knots: 8
Complement: 24 (3 officers)
Guns: 2 Bofors 40 mm/70. 2 Oerlikon 20 mm.
2 ships have 2—40 mm and 1 ship has 3—20 mm.

Comment: Built in 1943 to a UK design. Originally converted as repair craft. To be transferred from Italy in 2004 subject to survey.

UPDATED



LCT 3 CLASS (Italian colours) *4/2000, A Sharma /* 0104893

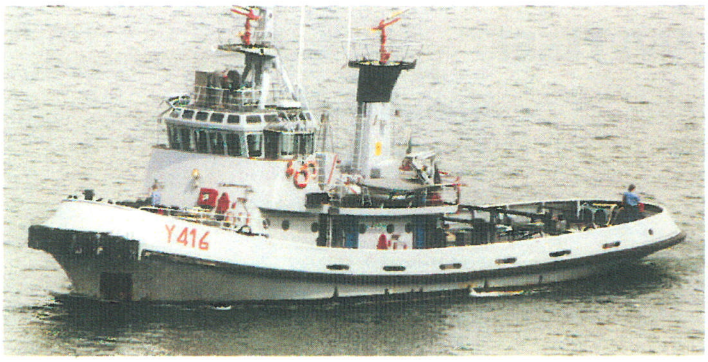
1 COASTAL TUG (YTB)

SIDI BU SAID (ex-*Porto D'Ischia*) — (ex-Y436)

Displacement, tons: 412 full load
Measurement, tons: 122 dwt
Dimensions, feet (metres): 106.3 × 27.9 × 12.8 *(32.4 × 8.5 × 3.9)*
Main machinery: 1 GMT B 230.8 M diesels; 1,600 hp(m) *(1.18 MW)* sustained; 1 shaft; cp prop
Speed, knots: 12.7. **Range, miles:** 4,000 at 12 kt
Complement: 13
Radars: Navigation: GEM BX 132; I-band.

Comment: Built in 1970. Transferred from Italy in November 2002.

UPDATED



COASTAL TUG (Italian colours) *5/2001, Giorgio Ghiglione /* 0130337

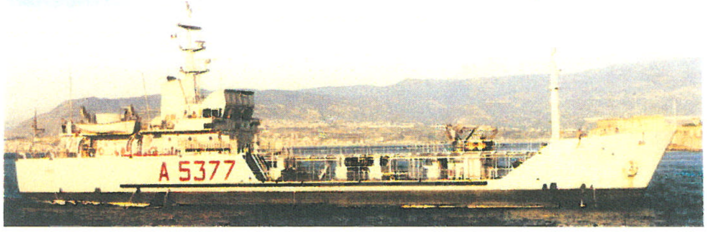
1 SIMETO CLASS (WATER TANKER) (AWT)

AIN ZAGHOUAN (ex-*Simeto*) — (ex-A 5375)

Displacement, tons: 1,858 full load
Dimensions, feet (metres): 229 × 33.1 × 14.4 *(69.8 × 10.1 × 4.1)*
Main machinery: 2 GMT B 230.6 BL diesels; 2,530 hp(m) *(1.86 MW)* sustained; 2 shafts; cp props; bow thruster; 300 hp(m) *(220 kW)*
Speed, knots: 13. **Range, miles:** 1,800 at 12 kt
Complement: 36 (3 officers)
Cargo capacity: 1,130 tons
Guns: 1—20 mm/70. 2—7.62 mm MGs can be carried.
Radars: Navigation: 2 SPN-753B(V); I-band.

Comment: Built by Cinet, Molfetta and originally commissioned on 9 July 1988. Transferred from Italy on 30 June 2003.

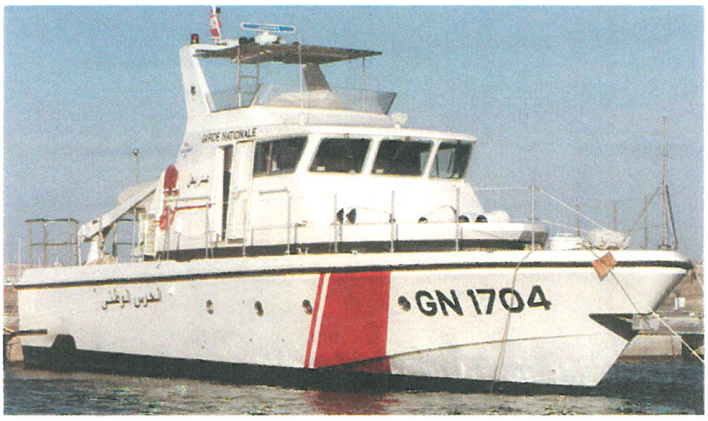
UPDATED



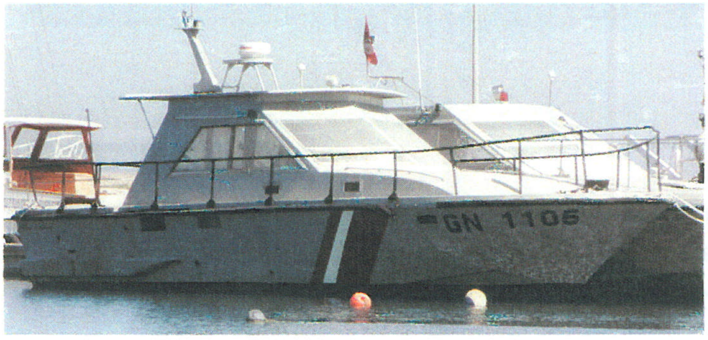
SIMETO CLASS (Italian colours) *2/2000, van Ginderen Collection /* 0104888

NATIONAL GUARD

Notes: (1) *Tazarke* P 205 and *Menzel Bourguiba* P 206 may have transferred from the Navy to the National Guard but this is not confirmed.
(2) There are four further patrol craft; *GN 1704, GN 1705, GN 1105* and *GN 907.*



GN 1704 *3/2002*, van Ginderen Collection /* 0141821



GN 1105 *3/2002*, van Ginderen Collection /* 0141834

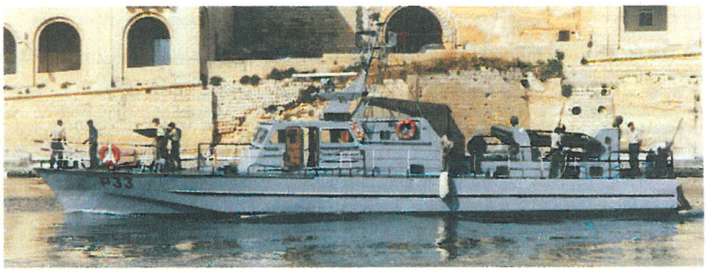
5 BREMSE CLASS (PB)

SBEITLA (ex-*G 32*)	**UTIQUE** (ex-*G 37*)	**SELEUTA** (ex-*G 39*)
BULLARIJIA (ex-*G 36*)	**UERKOUANE** (ex-*G 38*)	

Displacement, tons: 42 full load
Dimensions, feet (metres): 74.1 × 15.4 × 3.6 *(22.6 × 4.7 × 1.1)*
Main machinery: 2 SKL 6VD 18/5 AL-1 diesels; 944 hp(m) *(694 kW)* sustained; 2 shafts
Speed, knots: 14
Complement: 6
Guns: 2—14.5 mm (twin) MGs can be carried.
Radars: Navigation: TSR 333; I-band.

Comment: Built in 1971-72 for the ex-GDR GBK. Transferred from Germany in May 1992. Others of the class sold to Malta and Cyprus.

VERIFIED



BREMSE (Malta colours) *10/1995, van Ginderen Collection /* 0080855

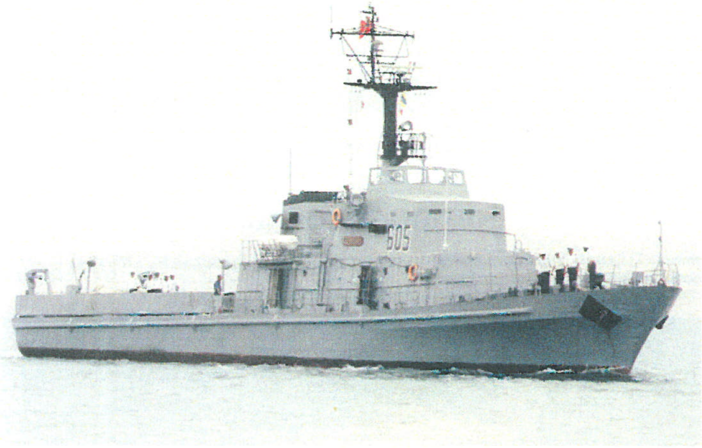
6 KONDOR I CLASS (PBO)

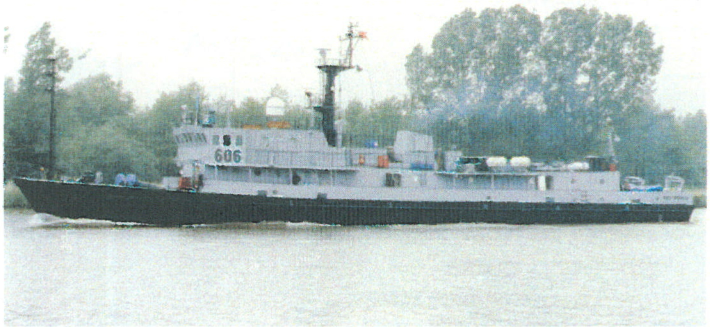
RAS EL BLAIS (ex-*Demmin*) 601	**RAS EL MANOURA** (ex-*Templin*) 604
RAS AJDIR (ex-*Malchin*) 602	**RAS ENGHELA** (ex-*Ahrenshoop*) 605
RAS EL EDRAK (ex-*Altentreptow*) 603	**RAS IFRIKIA** (ex-*Warnemunde*) 606

Displacement, tons: 377 full load
Dimensions, feet (metres): 170.3 × 23.3 × 7.2 *(51.9 × 7.1 × 2.2)*
Main machinery: 2 Russki/Kolomna 40-DM; 4,408 hp(m) *(3.24 MW)* sustained; 2 shafts; cp props
Speed, knots: 20. **Range, miles:** 1,800 at 15 kt
Complement: 24
Guns: 2—25 mm (twin) can be carried.
Radars: Navigation: TSR 333 or Racal Decca 360; I-band.

Comment: Former GDR minesweepers built at Peenewerft, Wolgast in 1969. First four transferred in May 1992, one in August 1997 and the last one in May 2000. In German service they were fitted with a twin 25 mm gun and a hull-mounted sonar. *Ras Ifrikia* has more extensive superstructure. These ships may belong to the Navy. Ships of the same class acquired by Cape Verde, Malta and Guinea-Bissau. Reported operational.

UPDATED


RAS ENGHELA *8/1997, Diego Quevedo* / 0050258


RAS IFRIKIA *5/2000*, Kristian Lundgren* / 0567538

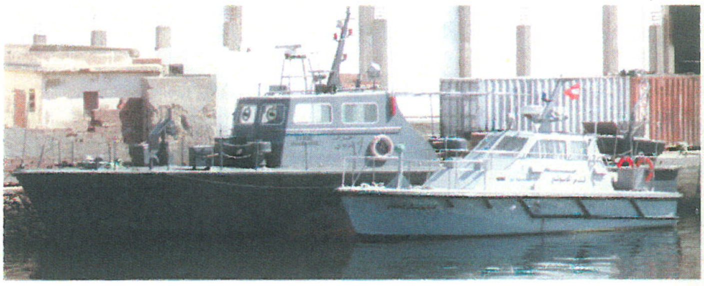
11 COASTAL PATROL CRAFT (PB)

ASSAD BIN FOURAT **MOHAMMED BRAHIM REJEB** **GN 2004** **GN 2005** **+7**

Displacement, tons: 32 full load
Dimensions, feet (metres): 67.3 × 15.4 × 4.3 *(20.5 × 4.7 × 1.3)*
Main machinery: 2 diesels; 1,000 hp(m) *(735 kW)*; 2 shafts
Speed, knots: 28. **Range, miles:** 500 at 20 kt
Complement: 8
Guns: 1—12.7 mm MG.

Comment: Details given are for the first one built by Socomena Bizerte, with assistance from South Korea, and completed 2 March 1986. The remainder are probably ARCOR 38 craft of which five belong to the Coast Guard and five to the National Guard.

UPDATED


COASTAL PATROL CRAFT *3/2002*, van Ginderen Collection* / 0141833

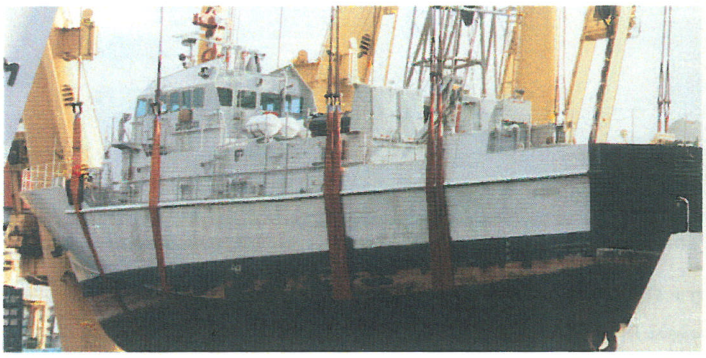
4 GABES CLASS (PB)

GABES **JERBA** **KELIBIA** **TABARK**

Displacement, tons: 18 full load
Dimensions, feet (metres): 42.3 × 12.5 × 3 *(12.9 × 3.8 × 0.9)*
Main machinery: 2 diesels; 800 hp(m) *(588 kW)*; 2 shafts
Speed, knots: 38. **Range, miles:** 250 at 15 kt
Complement: 6
Guns: 2—12.7 mm MGs.

Comment: Built by SBCN, Loctudy in 1988-89.

VERIFIED

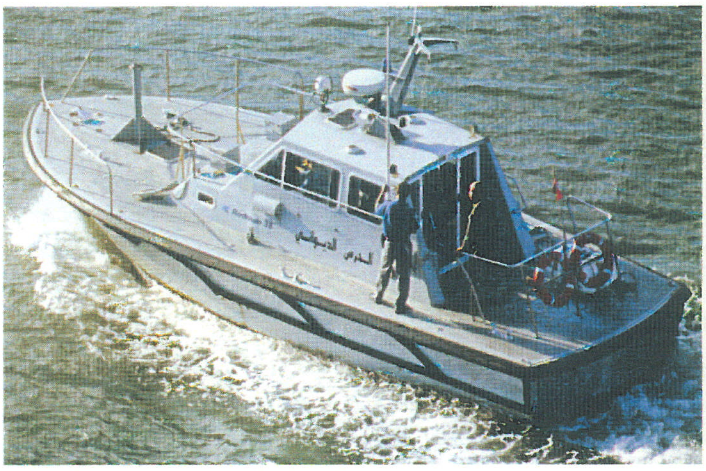

GABES *1/1995* / 0080857

4 RODMAN 38 CLASS (PB)

Displacement, tons: 11.2 full load
Dimensions, feet (metres): 38.7 × 12.8 × 2.82 *(11.6 × 3.9 × 0.86)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 28. **Range, miles:** 300 at 28 kt
Complement: 4
Radars: Navigation: I-band.

Comment: GRP hull. Two supplied in 2000 and two in 2002. Built by Rodman, Vigo for Customs Service.

NEW ENTRY


RODMAN 38 *9/2002*, Martin Mokrus* / 0567539

Turkey

TÜRK DENIZ KUVVETLERI

Country Overview

The modern Republic of Turkey was founded in 1923. Situated in south-east Europe and south-west Asia, the country has an area of 300,948 square miles and is bordered to the north-west by Bulgaria and Greece, to the north-east by Georgia and Armenia, to the east by Iran and to the south with Iraq and Syria. It has a 739 n mile coastline with the Black Sea and 3,149 n mile coastline with the Aegean and Mediterranean Seas. The capital is Ankara, while the leading ports are Istanbul (largest city) and Izmir. In addition, Black Sea ports include Trabzon, Giresun, Samsun, and Zonguldak while Iskenderun and Mersin lie on the Mediterranean. Territorial waters for Black Sea and Mediterranean (12 n miles) are claimed and for Aegean (6 n miles). An EEZ (200 n miles) is claimed in the Black Sea only.

Headquarters Appointments

Commander-in-Chief, Turkish Naval Forces:
Admiral Özden Örnek
Chief of Naval Staff:
Vice Admiral Uğur Yiğit
Chief of Coast Guard:
Rear Admiral Engin Heper

Flag Officers

Comturfleet (Gölcük):
Admiral Yener Karahanoğlu
Comtursarnorth (Istanbul):
Vice Admiral Metin Ataç

Flag Officers — *continued*

Comtursarsouth (Izmir):
Vice Admiral Lütfü Sancar
Comturnavtrai (Istanbul):
Vice Admiral Alev Gümüşoğlu
Comturampgroup (Foça):
Rear Admiral Aydin Gürül
Comtursuracgroup (Gölcük):
Rear Admiral Feyyaz Öğütcü
Comturfastgroup (Istanbul):
Rear Admiral Murat Bilgel
Comturcoguard (Ankara):
Rear Admiral Engin Heper

Flag Officers — *continued*

Comturminegroup (Erdek):
Rear Admiral Özer Karabulut
Comtursubgroup (Gölcük):
Rear Admiral A Can Erenoğlu
Comturespatgroup (Izmir):
Rear Admiral Atilla Kezek
Comiststrait (Istanbul):
Rear Admiral Kadir Sağdiç
Comcanstrait (Çanakkale):
Rear Admiral Deniz Kutluk
Comturageanzone (Izmir):
Rear Admiral Hüseyin Hoşgit
Comturmedzone (Mersin):
Rear Admiral Abdullah Akgül
Comtursouthtskgrp (Aksaz):
Rear Admiral Bülent Bostanoğlu
Comturnavgolbase (Gölcük):
Rear Admiral Necati Kurt
Comturnaviskbase (Iskenderun):
Rear Admiral Yalçin Kavukçuoğlu
Comturnavaksbase (Aksaz):
Rear Admiral Ömer Akdağli
Comturmairbase (Topel):
Rear Admiral Deniz Dağlilar

Diplomatic Representation

Defence and Naval Attaché in London:
Commander A Kenanoglu

Personnel

(a) 2004: 55,000 (5,500 officers) including 31,000 conscripts, 3,000 Marines and 900 Air Arm (reserves 70,000)
(b) 15 months' national service

Organisation

Fleet HQ (Ankara), Fleet Command (Gölcük), Northern Area Command (Black Sea and Marmara), Southern Area Command (Aegean and Mediterranean), Naval Training Command (Istanbul).

Bases

Headquarters: Ankara
Black Sea: Ereğli, Bartin, Samsun, Trabzon
Marmara: Istanbul, Erdek, Çanakkale, Gölcük
Mediterranean: Izmir, Foça, Antalya, Mersin, Iskenderun, Aksaz
Dockyards: Gölcük, Pendik (Istanbul), Izmir

Prefix to Ships' Names

TCG (Turkish Republic Ship)
TCSG (Turkish Republic Coast Guard)

Strength of the Fleet (including Coast Guard)

Type	*Active*	*Building (Planned)*
Submarines—Patrol	12	4
Frigates	20	—
Corvettes	6	—
Fast Attack Craft—Missile	21	6
Large Patrol Craft	17	—
Minelayers—Large	1	—
Minelayers—Tenders	3	—
Minesweepers/Hunters—Coastal	17	6
Minesweepers—Inshore	4	—
Minehunting Tenders	8	—
LSTs/Minelayers	5	—
LCTs	25	—
Survey Vessels	3	—
Training Ships	10	6
Fleet Support Ships	2	—
Tankers	21	—
Transports—Large and small	35	—
Salvage Ships	3	—
Boom Defence Vessels	2	—

Pennant Numbers

From mid-1997 all pennant numbers have been repainted in non-reflective paint.

Marines

Total: 3,000
One brigade of HQ company, three infantry battalions, one artillery battalion, support units.

Coast Guard (Sahil Güvenlik)

Formed in July 1982 from the naval wing of the Jandarma. Prefix J replaced by SG and paint scheme is very light grey with a diagonal stripe forward. About 1,700 officers and men.

DELETIONS

Submarines

2001	*Muratreis*

Destroyers

2001	*Peyk*

Frigates

2001	*Akdeniz*
2002	*Kocatepe*
2003	*Trakya*

Mine Warfare Forces

2001	*Nusret*

Patrol Forces

2001	*AB 26* (to Kazakhstan)
2002	*Kochisar, Sultanhisar, AB 25*
2003	*Bora*

Amphibious Forces

2001	*Sancaktar*
2003	*Bayraktar, Ç 113, Ç 117, Ç 122, Ç 124, Ç 302, Ç 303, Ç 309*

Auxiliaries

2001	*Tekirdağ*
2002	*Inebolu*

PENNANT LIST

Submarines

S 342	Hizirreis
S 343	Pirireis
S 347	Atilay
S 348	Saldiray
S 349	Batiray
S 350	Yildiray
S 351	Doğanay
S 352	Dolunay
S 353	Preveze
S 354	Sakarya
S 355	18 Mart
S 356	Anafartalar
S 357	Gür
S 358	Çanakkale (bldg)
S 359	Burakreis (bldg)
S 360	Birinci Inönü (bldg)

Frigates

F 240	Yavuz
F 241	Turgutreis
F 242	Fatih
F 243	Yildirim
F 244	Barbaros
F 245	Orucreis
F 246	Salihreis
F 247	Kemalreis
F 250	Muavenet
F 253	Zafer
F 255	Karadeniz
F 256	Ege
F 490	Gaziantep
F 491	Giresun
F 492	Gemlik
F 493	Gelibolu
F 494	Gökçeada
F 495	Gediz
F 496	Gökova
F 497	Göksu
F 500	Bozcaada
F 501	Bodrum
F 502	Bandirma
F 503	Beykoz
F 504	Bartin
F 505	Bafra

Mine Warfare Forces (Sweepers/Hunters)

M 260	Edincik
M 261	Edremit
M 262	Enez
M 263	Erdek
M 264	Erdemli
M 265	Alanya
M 266	Amasra (bldg)
M 267	Ayvalik (bldg)
M 268	Akçakoca
M 269	Anamur
M 270	Akçay
M 500	Foça
M 501	Fethiye
M 502	Fatsa
M 503	Finike
M 510	Samsun
M 511	Sinop
M 512	Sürmene
M 513	Seddülbahir
M 514	Silifke
M 515	Saros
M 516	Sigacik
M 517	Sapanca
M 518	Sariyer
M 520	Karamürsel
M 521	Kerempe
M 522	Kilimli
P 313-19	MTB 3-9

Amphibious Forces

L 401	Ertuğrul
L 402	Serdar
NL 123	Sarucabey
NL 124	Karamürselbey
NL 125	Osman Gazi

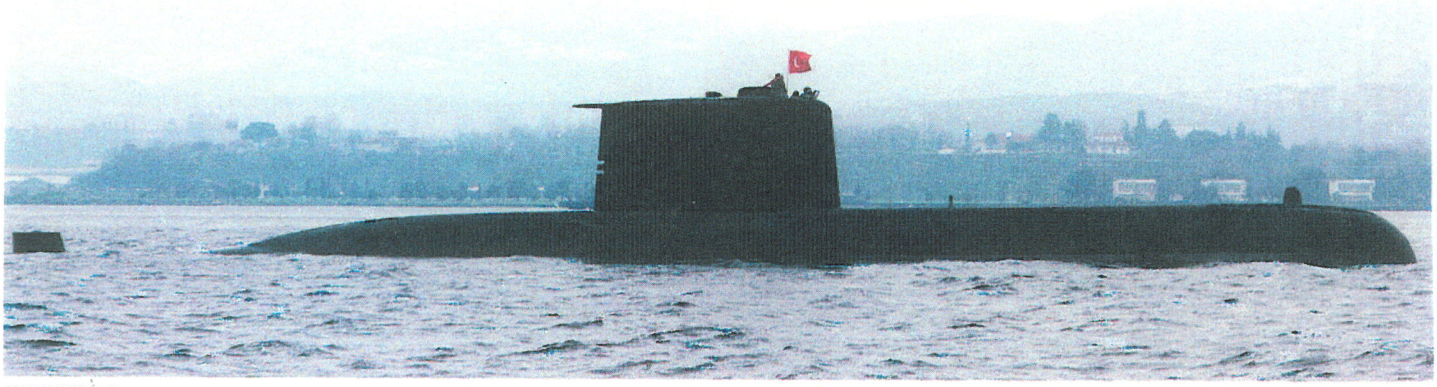
Patrol Forces

P 113	Yarhisar
P 114	Akhisar
P 121	AB 21
P 122	AB 22
P 123	AB 23
P 124	AB 24
P 127	AB 27
P 128	AB 28
P 129	AB 29
P 131	AB 31
P 133	AB 33
P 135	AB 35
P 136	AB 36
P 301	Kozlu
P 302	Kuşadasi
P 321	Denizkuşu
P 322	Atmaca
P 323	Şahin
P 324	Kartal
P 326	Pelikan
P 327	Albatros
P 328	Şimşek
P 329	Kasirga
P 330	Kiliç
P 331	Kalkan
P 332	Mizrak
P 333	Tufan
P 334	Meltem (bldg)
P 335	Imbat (bldg)
P 336	Zipkin (bldg)
P 337	Atak (bldg)
P 338	Bora (bldg)
P 340	Doğan
P 341	Marti
P 342	Tayfun
P 343	Volkan
P 344	Rüzgar
P 345	Poyraz
P 346	Gurbet
P 347	Firtina
P 348	Yildiz
P 349	Karayel
P 530	Trabzon
P 531	Terme

Auxiliaries

P 305	AG 5
P 306	AG 6
A 570	Taşkizak
A 571	Albay Hakki Burak
A 572	Yuzbaşi Ihsan Tolunay
A 573	Binbaşi Sadettin Gürcan
A 576	Değirmendere
A 577	Sokullu Mehmet Paşa
A 578	Darica
A 579	Cezayirli Gazi Hasan Paşa
A 580	Akar
A 581	Çinar
A 582	Kemer
A 583	Aksaz
A 585	Akin
A 586	Akbas
A 587	Gazal
A 588	Çandarli
A 589	Işin
A 592	Karadeniz Ereğlisi
A 593	Eceabat
A 594	Çubuklu
A 595	Yarbay Kudret Güngör
A 596	Ulubat
A 597	Van
A 598	Sögüt
A 599	Çeşme
A 600	Kavak
A 1531	E 1
A 1532	E 2
A 1533	E 3
A 1534	E 4
A 1535	E 5
A 1536	E 6
A 1537	E 7
A 1538	E 8
A 1542	Söndüren 2
A 1543	Söndüren 3
A 1544	Söndüren 4
A 1600	Iskenderun
Y 50	Gölcük
Y 111-116	Pinar 1-6
Y 140-142	H 500-502

SUBMARINES



ANAFARTALAR

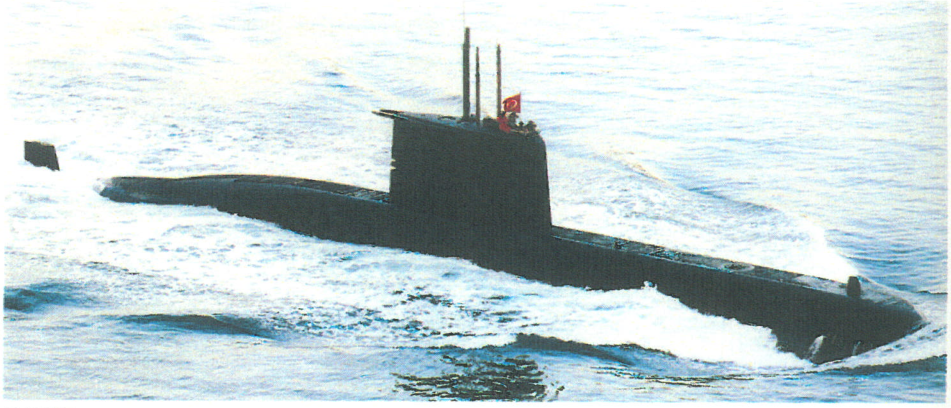
4/2001, Selçuk Emre / 0132789

5 + 3 PREVEZE (209) CLASS (TYPE 1400) (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
PREVEZE	S 353	Gölcük, Kocaeli	12 Sep 1989	22 Oct 1993	28 July 1994
SAKARYA	S 354	Gölcük, Kocaeli	1 Feb 1990	28 July 1994	21 Dec 1995
18 MART	S 355	Gölcük, Kocaeli	28 July 1994	25 Aug 1997	28 June 1998
ANAFARTALAR	S 356	Gölcük, Kocaeli	1 Aug 1995	1 Sep 1998	22 July 1999
GÜR	S 357	Pendik Naval Shipyard, Istanbul	24 July 1998	May 2002	24 July 2003
ÇANAKKALE	S 358	Pendik Naval Shipyard, Istanbul	22 July 1999	Aug 2002	June 2004
BURAKREIS	S 359	Pendik Naval Shipyard, Istanbul	25 July 2001	2004	2006
BIRINCI INÖNÜ	S 360	Gölcük, Kocaeli	25 July 2002	2005	2007

Displacement, tons: 1,454 surfaced; 1,586 dived
Dimensions, feet (metres): 203.4 × 20.3 × 18 *(62 × 6.2 × 5.5)*
Main machinery: Diesel-electric; 4 MTU 12V 396 SB83 diesels; 3,800 hp(m) *(2.8 MW)* sustained; 4 alternators; 1 Siemens motor; 4,000 hp(m) *(3.38 MW)* sustained; 1 shaft
Speed, knots: 10 surfaced/snorting; 21.5 dived
Range, miles: 8,200 at 8 kt surfaced; 400 at 4 kt dived
Complement: 30 (8 officers)

Missiles: SSM: McDonnell Douglas Sub Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
Torpedoes: 8—21 in *(533 mm)* bow tubes. GEC-Marconi Tigerfish Mk 24 Mod 2; wire-guided; active/passive homing to 13 km *(7 n miles)* at 35 kt active; 29 km *(15.7 n miles)* at 24 kt passive; warhead 134 kg or STN Atlas DM 2A4 (S 357 onwards). Total of 14 torpedoes and missiles.
Mines: In lieu of torpedoes.
Countermeasures: ESM: Racal Porpoise or Racal Sealion (UAP) (S 357 onwards); intercept.
Weapons control: Atlas Elektronik ISUS 83-2 TFCS. Link 11 receive only.
Radars: Surface search; I-band.
Sonars: Atlas Elektronik CSU 83; passive/active search and attack; medium/high frequency.
Atlas Elektronik TAS-3; towed array; passive low frequency.
STN Atlas flank array; passive low frequency.



18 MART

7/2000, Michael Nitz / 0106618

Programmes: Order for first two signed in Ankara on 17 November 1987 with option on two more taken up in 1993. Four more ordered 22 July 1998. All built with HDW prefabrication and assembly at Gölcük. The last four are to complete at one a year from 2004 and are called the 'Gür' class. Despite the earthquake damage to Gölcük in 1999, the building programme is reported to be keeping to schedule. The first four names commemorate Turkish victories. 18 March 1915 marks a victory in the Dardanelles and *Anafartalar* is a hill in Gallipoli.
Structure: Diving depth, 280 m *(820 ft)*. Kollmorgen masts. Four torpedo tubes can be used for SSM. STN Atlas flank arrays fitted in 1998/99 to the first four.
Operational: Endurance, 50 days.

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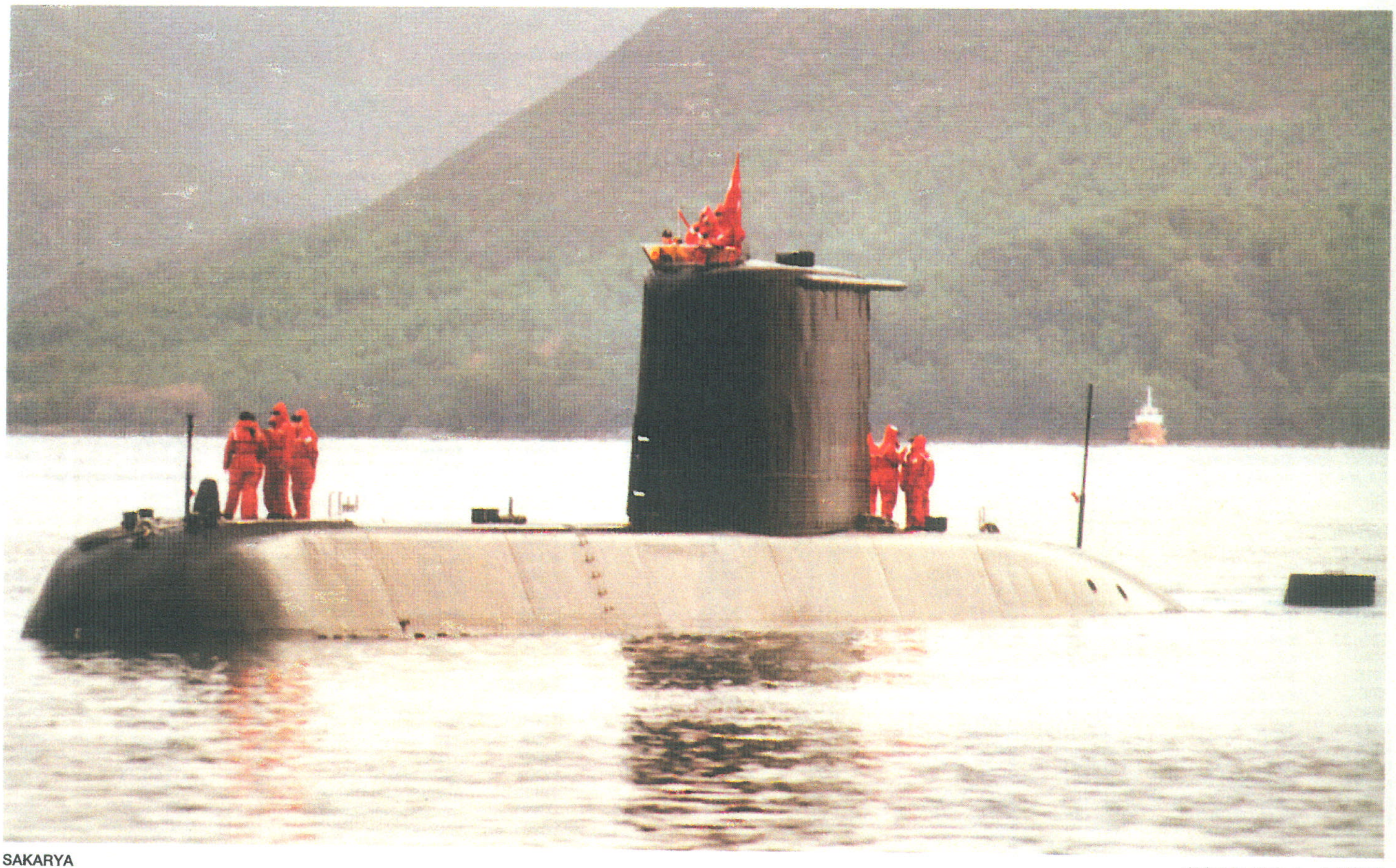
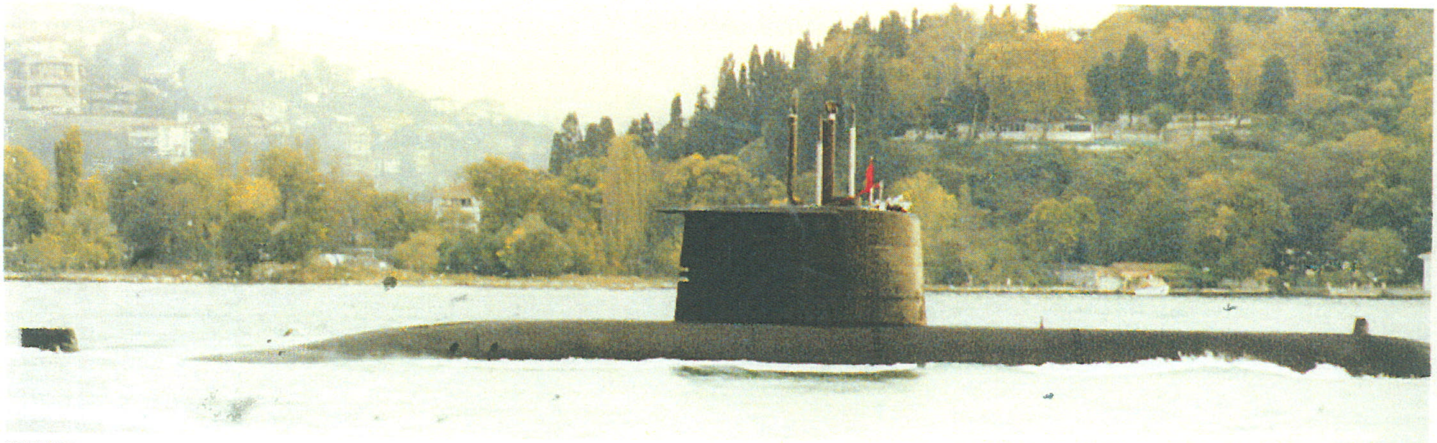


SAKARYA

12/2001, M Declerck / 0533241



PREVEZE

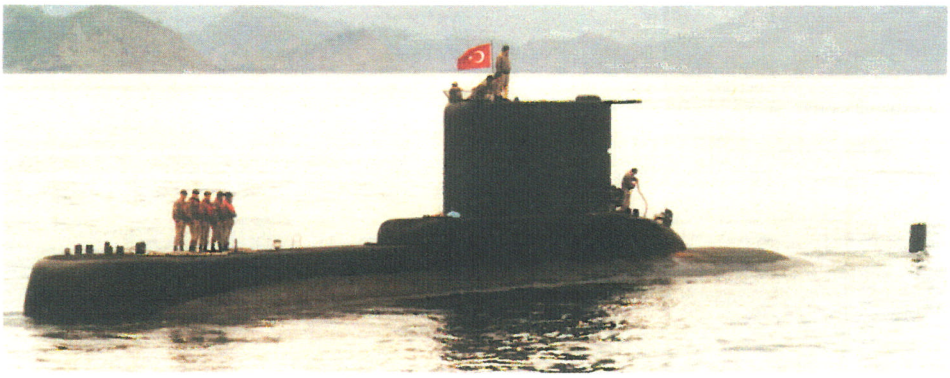
10/2003, C D Yaylali* / 0567543

6 ATILAY (209) CLASS (TYPE 1200) (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ATILAY	S 347	Howaldtswerke, Kiel	1 Dec 1972	23 Oct 1974	12 Mar 1976
SALDIRAY	S 348	Howaldtswerke, Kiel	2 Jan 1973	14 Feb 1975	15 Jan 1977
BATIRAY	S 349	Howaldtswerke, Kiel	1 June 1975	24 Oct 1977	7 Nov 1978
YILDIRAY	S 350	Gölcük, Izmit	1 May 1976	20 July 1979	20 July 1981
DOĞANAY	S 351	Gölcük, Izmit	21 Mar 1980	16 Nov 1983	16 Nov 1984
DOLUNAY	S 352	Gölcük, Izmit	9 Mar 1981	22 July 1988	29 June 1990

Displacement, tons: 980 surfaced; 1,185 dived
Dimensions, feet (metres): 200.8 × 20.3 × 17.9 *(61.2 × 6.2 × 5.5)*
Main machinery: Diesel-electric; 4 MTU 12V 493 TY60 diesels; 2,400 hp(m) *(1.76 MW)* sustained; 4 alternators; 1.7 MW; 1 Siemens motor; 4,600 hp(m) *(3.38 MW)* sustained; 1 shaft
Speed, knots: 11 surfaced; 22 dived
Range, miles: 7,500 at 8 kt surfaced
Complement: 38 (9 officers)

Torpedoes: 8—21 in *(533 mm)* tubes. 14 AEG SST 4; wire-guided; active/passive homing to 28 km *(15.3 n miles)* at 23 kt; 12 km *(6.6 n miles)* at 35 kt; warhead 260 kg. Swim-out discharge.
Countermeasures: ESM: Thomson-CSF DR 2000 or Racal Sealion (UAP) or Racal Porpoise; intercept
Weapons control: Signaal M8 (S 347-348). Signaal Sinbads (remainder). Link 11 receive.
Radars: Surface search: S 63B; I-band.
Sonars: Atlas Elektronik CSU 3; hull-mounted; passive/active search and attack; medium/high frequency.


BATIRAY

12/2001, M Declerck / 0533242

Programmes: Designed by Ingenieurkontor, Lübeck for construction by Howaldtswerke, Kiel and sale by Ferrostaal, Essen, all acting as a consortium. Last three built in Turkey with assistance given by HDW.
Modernisation: Mid-life upgrades planned to include fire-control system starting with the first pair. Possibly by STN Elektronik to 'Preveze' class standards. Programme drawn up in July 1995 and started with first pair being fitted with a new ESM in 1999. Further modernisation, including the installation of AIP propulsion, is under consideration.
Structure: A single-hull design with two ballast tanks and forward and after trim tanks. Fitted with snort and remote machinery control. The single screw is slow revving. Very high-capacity batteries with GRP lead-acid cells and battery cooling-by Wilh Hagen. Active and passive sonar, sonar detection equipment, sound ranging gear and underwater telephone. Fitted with two periscopes, radar and Omega receiver. Fore-planes retract. Diving depth, 250 m *(820 ft)*.
Operational: Endurance, 50 days. Some US Mk 37 torpedoes may also be carried.

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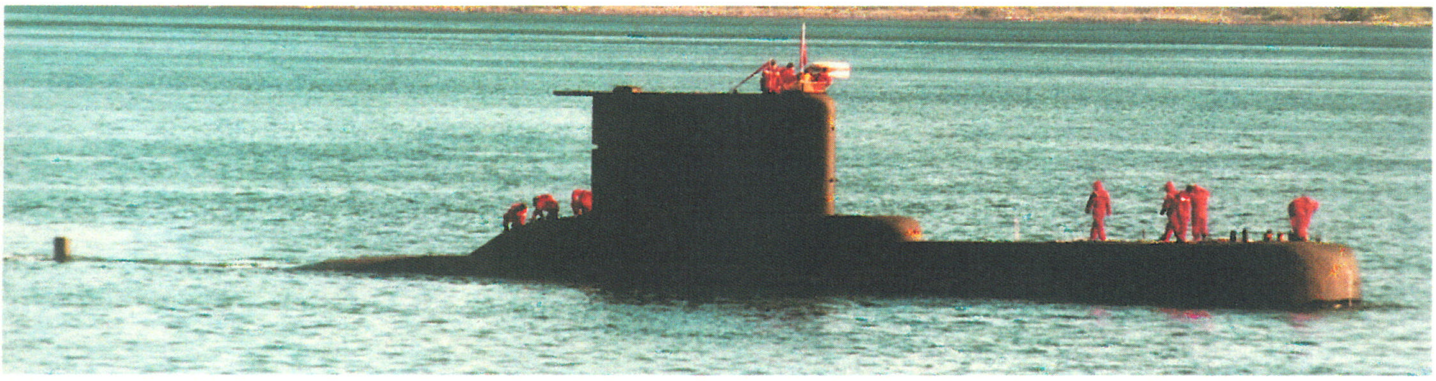
YILDIRAY

1/2002, M Declerck / 0132790

2 TANG CLASS (SS)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*Recommissioned*
HIZIRREIS (ex-*Gudgeon* SS 567)	S 342	Portsmouth Navy Yard	20 May 1950	11 June 1952	21 Nov 1952	30 Sep 1983
PIRIREIS (ex-*Tang* SS 563)	S 343	Portsmouth Navy Yard	18 Apr 1949	27 Apr 1952	25 Oct 1952	21 Apr 1980

Displacement, tons: 2,100 surfaced; 2,700 dived
Dimensions, feet (metres): 287 × 27.3 × 19 *(87.4 × 8.3 × 5.8)*
Main machinery: Diesel-electric; 3 Fairbanks-Morse 38D8-1/8-10 diesels; 4,500 hp *(3.4 MW)*; 2 Westinghouse motors; 5,600 hp *(4.2 MW)*; 2 shafts
Speed, knots: 16 surfaced; 16 dived
Range, miles: 7,600 at 15 kt surfaced
Complement: 87 (8 officers)

Torpedoes: 8—21 in *(533 mm)* (6 fwd, 2 aft) tubes. 21 Westinghouse Mk 37; active/passive homing to 8 km *(4.4 n miles)* at 24 kt; warhead 150 kg.
Mines: In lieu of torpedoes.
Countermeasures: ESM: WLR-1; radar warning.
Weapons control: Mk 106 torpedo FCS.
Radars: Surface search: Fairchild BPS 12; I-band.
Sonars: EDO BQR 2B; hull-mounted; passive search and attack; medium frequency.
EDO BQS 4; adds active capability to BQR 2B.
Sperry/Raytheon BQG 4; passive ranging.

Programmes: S 343 transferred by lease from US January 1980, S 342 September 1983. Both finally purchased in June 1987.

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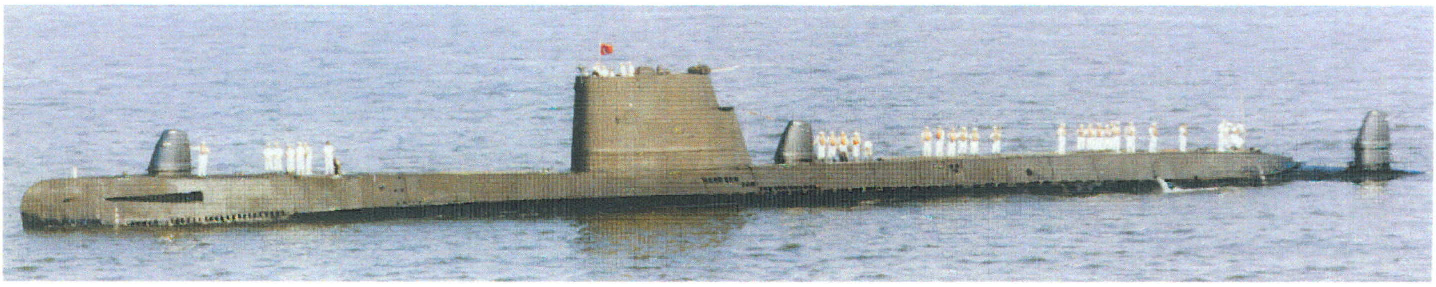
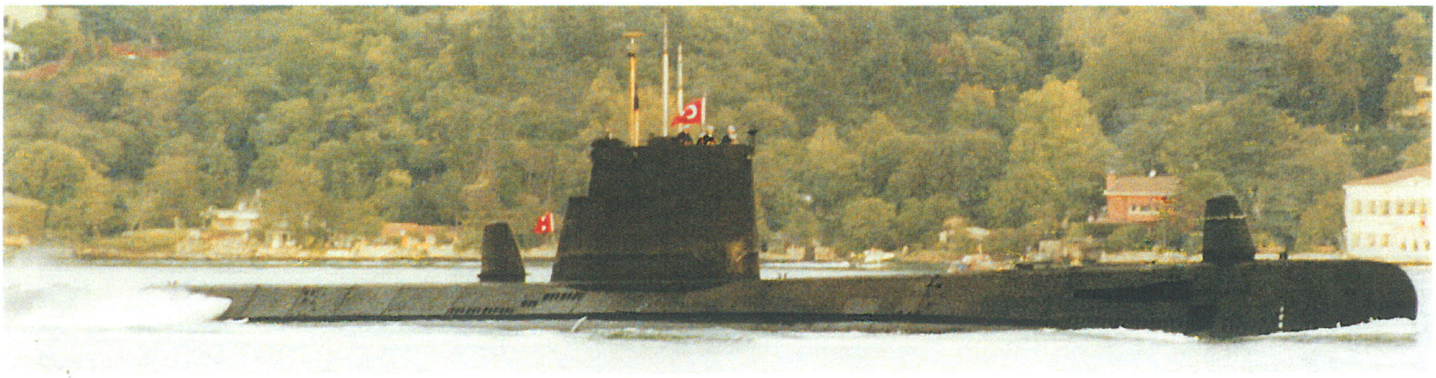

HIZIRREIS

6/2001, Selim San / 0114818


HIZIRREIS

10/2003, C D Yaylali* / 0567544

FRIGATES

Notes: The Turkish Frigate 2000 (TF 2000) project has been delayed due to economic difficulties. Three batches of two ships are envisaged with a mix of in-country and foreign construction. TF 2000 is to meet the requirement for an area air defence capability.

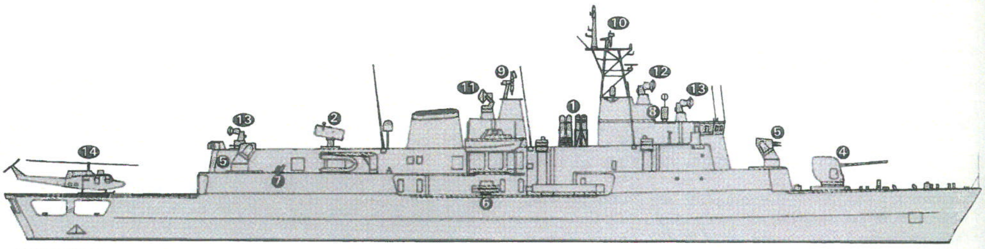
4 BARBAROS CLASS (MODIFIED MEKO 200 TYPE) (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
BARBAROS	F 244	Blohm + Voss, Hamburg	18 Mar 1993	29 Sep 1993	16 Mar 1995
ORUCREIS	F 245	Gölcük, Kocaeli	15 Sep 1993	28 July 1994	10 May 1996
SALIHREIS	F 246	Blohm + Voss, Hamburg	24 July 1995	26 Sep 1997	17 Dec 1998
KEMALREIS	F 247	Gölcük, Kocaeli	4 Apr 1997	24 July 1998	8 June 2000

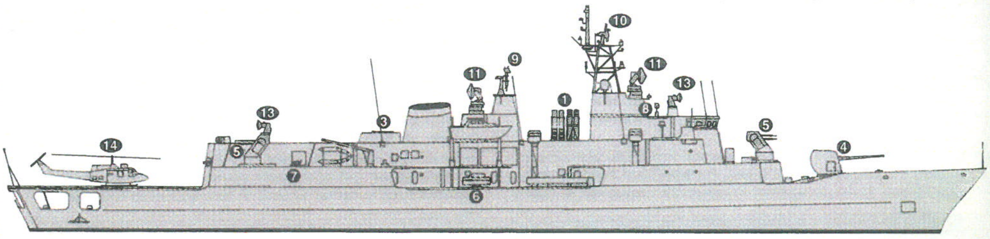
Displacement, tons: 3,380 full load
Dimensions, feet (metres): 387.1 × 48.6 × 14.1; 21 (sonar) *(118 × 14.8 × 4.3; 6.4)*
Main machinery: CODOG; 2 GE LM 2500 gas turbines; 60,000 hp *(44.76 MW)* sustained; 2 MTU 16V 1163 TB83 diesels; 11,780 hp(m) *(8.67 MW)* sustained; 2 shafts; Escher Wyss; cp props
Speed, knots: 32. **Range, miles:** 4,100 at 18 kt
Complement: 187 (22 officers) plus 9 aircrew plus 8 spare

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ①; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: Raytheon Sea Sparrow RIM-7M Mk 29 Mod 1 octuple launcher ② (F 244 and F 245) and VLS Mk 41 Mod 8 ③ (F 246 and F 247); 24 Selenia Elsag Aspide; semi-active radar homing to 13 km *(7 n miles)* at 2.5 Mach; warhead 39 kg. Evolved Sea Sparrow (ESSM) in due course.
Guns: 1 FMC 5 in *(127 mm)*/54 Mk 45 Mod 1/2 ④; 20 rds/min to 23 km *(12.6 n miles)* anti-surface; 15 km *(8.2 n miles)* anti-aircraft; weight of shell 32 kg.
3 Oerlikon-Contraves 25 mm Sea Zenith ⑤; 4 barrels per mounting; 3,400 rds/min combined to 2 km.
Torpedoes: 6—324 mm Mk 32 Mod 5 (2 triple) tubes ⑥. Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor 6-tubed fixed Mk 36 Mod 1 SRBOC ⑦; IR flares and chaff to 4 km *(2.2 n miles)*. Nixie SLQ-25; towed torpedo decoy.
ESM/ECM: Racal Cutlass/Scorpion; intercept and jammer.
Combat data systems: Thomson-CSF/Signaal STACOS Mod 3; Link 11. WSC 3V(7) SATCOMs. Marisat.
Weapons control: 2 Siemens Albis optronic directors ⑧. SWG-1A for Harpoon.
Radars: Air search: Siemens/Plessey AWS 9 (Type 996) ⑨; 3D; E/F-band.
Air/surface search: Plessey/BAe AWS 6 Dolphin ⑩; G-band.
Fire control: 1 or 2 (F 246-247) Signaal STIR ⑪; I/J/K-band (for SAM); range 140 km *(76 n miles)* for 1 m^2 target.
Contraves TMKu (F 244-245) ⑫; I/J-band (for SSM and 127 mm).
2 Contraves Seaguard ⑬; I/J-band (for 25 mm).
Navigation: Racal Decca 2690 BT ARPA; I-band.
Tacan: URN 25. IFF Mk XII Mod 4.
Sonars: Raytheon SQS-56 (DE 1160); hull-mounted; active search and attack; medium frequency.

Helicopters: 1 AB 212ASW ⑭ or S-70B Seahawk.



BARBAROS *(Scale 1 : 900), Ian Sturton* / 0019315



SALIHREIS *(Scale 1 : 900), Ian Sturton* / 0050273

KEMALREIS *8/2003*, C D Yaylali* / 0567545

Programmes: First pair ordered 19 January 1990, second pair authorised 14 December 1992. Programme started 5 November 1991 with construction commencing in June 1992 in Germany. Completion of the last one delayed by the Gölcük earthquake in 1999.

Structure: An improvement on the 'Yavuz' class. Mk 29 Sea Sparrow launchers fitted in the first two, while the second pair have Mk 41 VLS aft of the funnel, which will be retrofitted in the first two in due course. The ships have CODOG propulsion for a higher top speed. Other differences with *Yavuz* include a full command system, improved radars and a citadel for NBCD protection. A bow bulwark has been added in the second pair.

Operational: Helicopter has Sea Skua anti-ship missiles. The first pair used as Flagships.

UPDATED

SALIHREIS *7/2001, Michael Nitz* / 0533247

KEMALREIS *9/2002, Bernard Prézelin* / 0533248

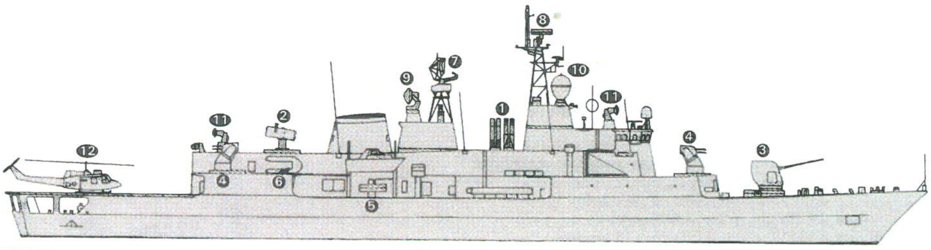
4 YAVUZ CLASS (MEKO 200 TYPE) (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
YAVUZ	F 240	Blohm + Voss, Hamburg	30 May 1985	7 Nov 1985	17 July 1987
TURGUTREIS (ex-*Turgut*)	F 241	Howaldtswerke, Kiel	20 May 1985	30 May 1986	4 Feb 1988
FATIH	F 242	Gölcük, Izmit	1 Jan 1986	24 Apr 1987	28 Aug 1988
YILDIRIM	F 243	Gölcük, Izmit	24 Apr 1987	22 July 1988	17 Nov 1989

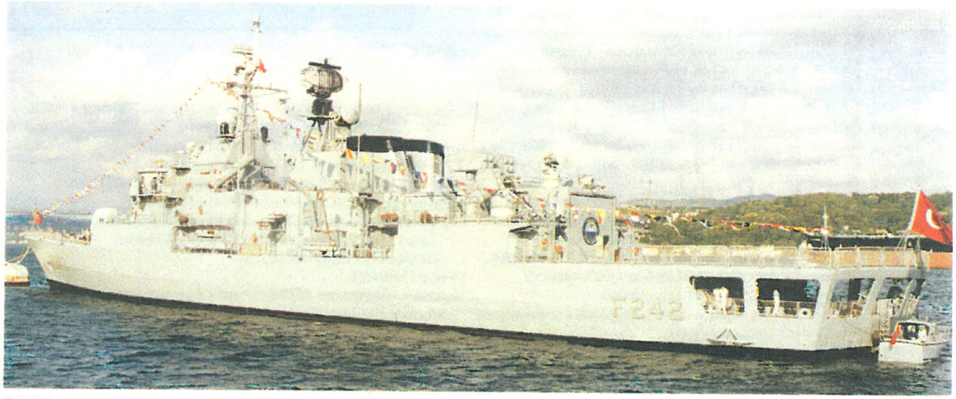
Displacement, tons: 2,414 standard; 2,919 full load
Dimensions, feet (metres): 378.9 × 46.6 × 13.5 *(115.5 × 14.2 × 4.1)*
Main machinery: CODAD; 4 MTU 20V 1163 TB93 diesels; 29,940 hp(m) *(22 MW)* sustained; 2 shafts; cp props
Speed, knots: 27. **Range, miles:** 4,100 at 18 kt
Complement: 180 (24 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: Raytheon Sea Sparrow RIM-7M Mk 29 Mod 1 octuple launcher ❷; 24 Selenia Elsag Aspide; semi-active radar homing to 13 km *(7 n miles)* at 2.5 Mach; warhead 39 kg.
Guns: 1 FMC 5 in *(127 mm)*/54 Mk 45 Mod 1 ❸; 20 rds/min to 23 km *(12.6 n miles)* anti-surface; 15 km *(8.2 n miles)* anti-aircraft; weight of shell 32 kg.
3 Oerlikon-Contraves 25 mm Sea Zenith ❹; 4 barrels per mounting; 3,400 rds/min combined to 2 km.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❺. Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor 6-tubed fixed Mk 36 Mod 1 SRBOC ❻; IR flares and chaff to 4 km *(2.2 n miles)*.
Nixie SLQ-25; towed torpedo decoy.
ESM/ECM: Signaal Rapids/Ramses; intercept and jammer.
Combat data systems: Signaal STACOS-TU; action data automation; Link 11. WSC 3V(7) SATCOMs. Marisat.
Weapons control: 2 Siemens Albis optronic directors (for Sea Zenith). SWG-1A for Harpoon.
Radars: Air search: Signaal DA08 ❼; F-band.
Air/surface search: Plessey AWS 6 Dolphin ❽; G-band.
Fire control: Signaal STIR ❾; I/J/K-band (for SAM); range 140 km *(76 n miles)* for 1 m² target.
Signaal WM25 ❿; I/J-band (for SSM and 127 mm).
2 Contraves Seaguard ⓫; I/J-band (for 25 mm).
Navigation: Racal Decca TM 1226; I-band.
Tacan: URN 25. IFF Mk XII.
Sonars: Raytheon SQS-56 (DE 1160); hull-mounted; active search and attack; medium frequency.

Helicopters: 1 AB 212ASW ⓬.



YAVUZ *(Scale 1 : 900), Ian Sturton*



FATIH *5/2003*, Selim San* / 0567546

Programmes: Ordered 29 December 1982 with builders and Thyssen Rheinstahl Technik of Dusseldorf. Meko 200 type similar to Portuguese frigates. *Turgutreis* was renamed on 14 February 1988.

Operational: Helicopter has Sea Skua anti-ship missiles.

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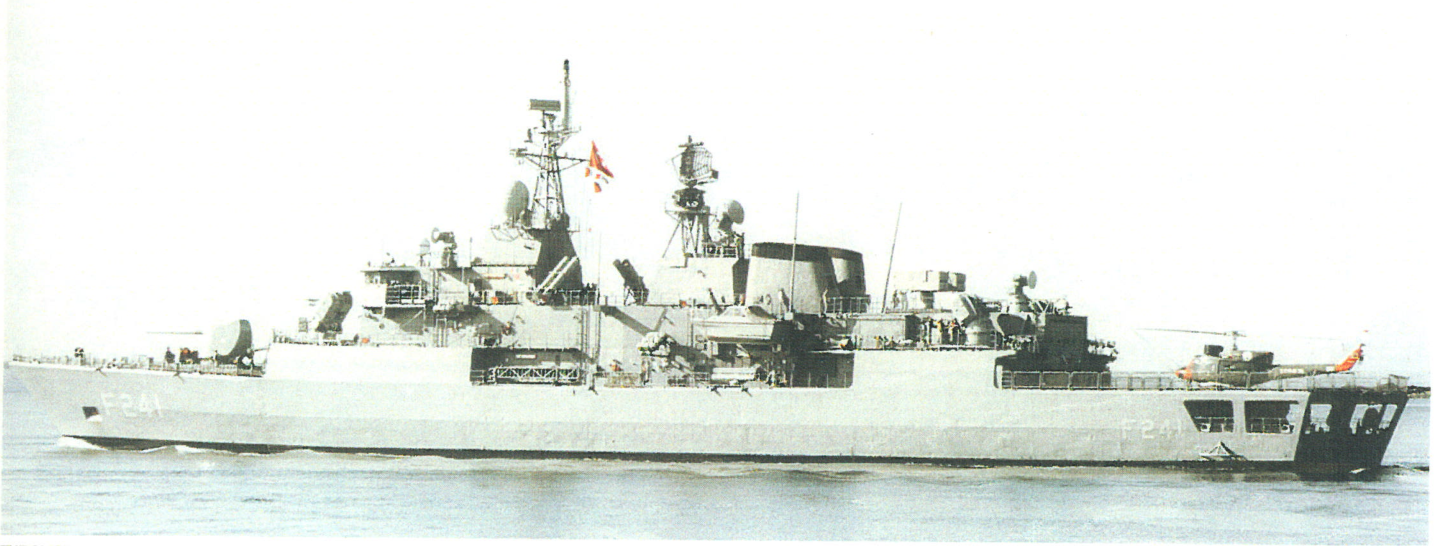
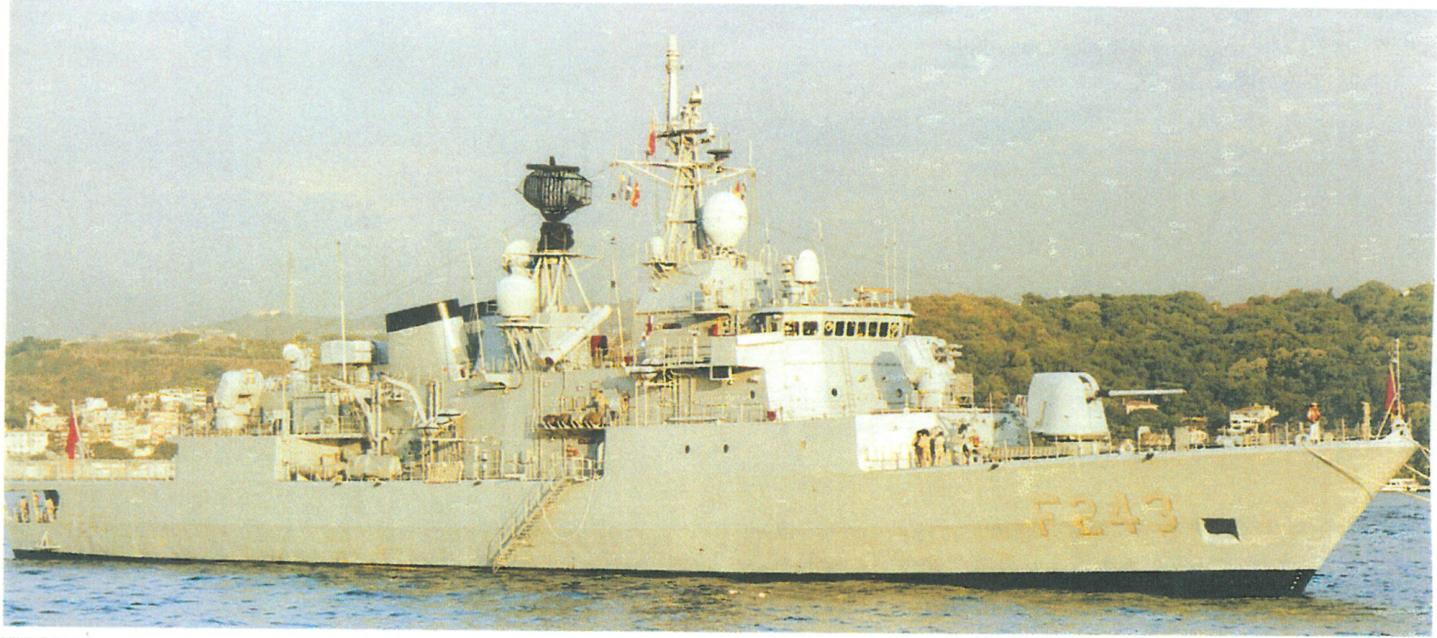


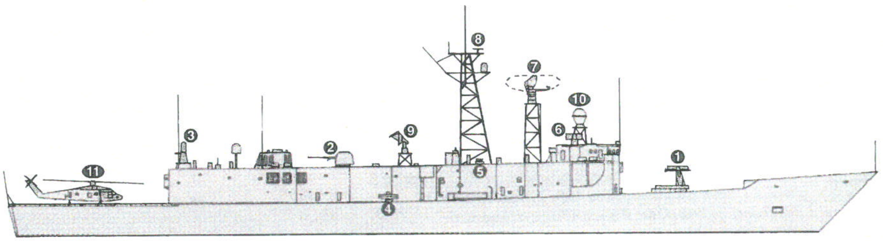
TURGUTREIS *10/1999, H M Steele* / 0080864



YILDIRIM *9/2003*, C D Yaylali* / 0567547

8 GAZIANTEP (OLIVER HAZARD PERRY) CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*Recommissioned*
GAZIANTEP (ex-*Clifton Sprague*)	F 490 (ex-FFG 16)	Bath Iron Works	30 Sep 1979	16 Feb 1980	21 Mar 1981	24 July 1998
GIRESUN (ex-*Antrim*)	F 491 (ex-FFG 20)	Todd Shipyards, Seattle	21 June 1978	27 Mar 1979	26 Sep 1981	24 July 1998
GEMLIK (ex-*Flatley*)	F 492 (ex-FFG 21)	Bath Iron Works	13 Nov 1979	15 May 1980	20 June 1981	24 July 1998
GELIBOLU (ex-*Reid*)	F 493 (ex-FFG 30)	Todd Shipyards, San Pedro	8 Oct 1980	27 June 1981	19 Feb 1983	22 July 1999
GÖKÇEADA (ex-*Mahlon S Tisdale*)	F 494 (ex-FFG 27)	Todd Shipyards, San Pedro	19 Mar 1980	7 Feb 1981	27 Nov 1982	8 June 2000
GEDIZ (ex-*John A Moore*)	F 495 (ex-FFG 19)	Todd Shipyards, San Pedro	19 Dec 1978	20 Oct 1979	14 Nov 1981	25 July 2000
GOKOVA (ex-*Samuel Eliot Morison*)	F 496 (ex-FFG 13)	Bath Iron Works	4 Aug 1978	14 July 1979	11 Oct 1980	11 Apr 2002
GÖKSU (ex-*Estocin*)	F 497 (ex-FFG 15)	Bath Iron Works	2 Apr 1979	3 Nov 1979	10 Jan 1981	4 Apr 2003



GAZIANTEP

(Scale 1 : 1,200), Ian Sturton / 0019307

Displacement, tons: 2,750 light, 3,638 full load
Dimensions, feet (metres): 445/453 (modified units) × 45 × 14.8; 24.5 (sonar)
(135.6/138.1 × 13.7 × 4.5; 7.5)
Main machinery: 2 GE LM 2500 gas turbines; 41,000 hp *(30.59 MW)* sustained; 1 shaft; cp prop
2 auxiliary retractable props; 650 hp *(484 kW)*
Speed, knots: 29. **Range, miles:** 4,500 at 20 kt
Complement: 206 (13 officers) including 19 aircrew

Missiles: SSM: 4 McDonnell Douglas Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: 36 GDC Standard SM-1MR; command guidance; semi-active radar homing to 46 km *(25 n miles)* at 2 Mach.
1 Mk 13 Mod 4 launcher for both SSM and SAM missiles ❶.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 Mk 75 ❷; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg.
1 General Electric/General Dynamics 20 mm/76 6-barrelled Mk 15 Vulcan Phalanx ❸; 3,000 rds/min combined to 1.5 km.
4—12.7 mm MGs.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❹. 24 Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled fixed Mk 36 ❺; IR flares and chaff to 4 km *(2.2 n miles)*.
T-Mk-6 Fanfare/SLQ-25 Nixie; torpedo decoy.
ESM/ECM: SLQ-32(V)2 ❻; radar warning. Sidekick modification adds jammer and deception system.
Combat data systems: NTDS with Link 11 and 14. SATCOM.

Weapons control: SWG-1 Harpoon LCS. Mk 92 Mod 4 WCS with CAS (Combined Antenna System). The Mk 92 is the US version of the Signaal WM28 system. Mk 13 weapon direction system. 2 Mk 24 optical directors.
Radars: Air search: Raytheon SPS-49(V)4 ❼; C/D-band.
Surface search: ISC Cardion SPS-55 ❽; I-band.
Fire control: Lockheed STIR (modified SPG-60) ❾; I/J-band.
Sperry Mk 92 (Signaal WM28) ❿; I/J-band.
Navigation: Furuno; I-band.
Tacan: URN 25.
Sonars: Raytheon SQS-56; hull-mounted; active search and attack; medium frequency.

Helicopters: 1 S-70B Seahawk ⓫.

Programmes: Three approved for transfer by grant aid. Transfer delayed by Greek objections, and Turkish sailors were sent home from the US in mid-1996. Congress authorised the go-ahead again on 27 August 1997. Two more approved for transfer by sale 30 September 1998, one in February 2000, one in April 2002 and one in April 2003. At least one other *Duncan* FFG 10 for spares.
Modernisation: Project 'Genesis' includes plans to upgrade the combat data system.
Structure: A flight deck extension programme, to enable S-70 helicopters to be handled is underway. Two ships were modified by late 2001. The work involves angling the transom as in later USN ships of the class.
Operational: Sonar towed arrays were not transferred.

UPDATED

GELIBOLU

9/2002, Selim San / 0533244

GÖKÇEADA (with flight deck extension)

10/2003, C D Yaylali* / 0567548

4 TEPE (KNOX) CLASS (FFGH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*Recommissioned*
MUAVENET (ex-*Capodanno*)	F 250 (ex-1093)	Avondale Shipyards	12 Oct 1971	21 Oct 1972	17 Nov 1973	12 Sep 1993
ZAFER (ex-*Thomas C Hart*)	F 253 (ex-1092)	Avondale Shipyards	8 Oct 1971	12 Aug 1972	28 July 1973	30 Aug 1993
KARADENIZ (ex-*Donald B Beary*)	F 255 (ex-1085)	Avondale Shipyards	24 July 1970	22 May 1971	22 July 1972	20 May 1994
EGE (ex-*Ainsworth*)	F 256 (ex-1090)	Avondale Shipyards	11 June 1971	15 Apr 1972	31 Mar 1973	27 May 1994

Displacement, tons: 3,011 standard; 4,260 full load
Dimensions, feet (metres): 439.6 × 46.8 × 15; 24.8 (sonar) *(134 × 14.3 × 4.6; 7.8)*
Main machinery: 2 Combustion Engineering/Babcock & Wilcox boilers; 1,200 psi *(84.4 kg/cm²)*; 950°F *(510°C)*; 1 Westinghouse turbine; 35,000 hp *(26 MW)*; 1 shaft
Speed, knots: 27. **Range, miles:** 4,000 at 22 kt on 1 boiler
Complement: 288 (20 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
A/S: Honeywell ASROC Mk 16 octuple launcher with reload system (has 2 cells modified to fire Harpoon) ❶; inertial guidance to 1.6-10 km *(1-5.4 n miles)*; payload Mk 46 Mod 5 Neartip.
Guns: 1 FMC 5 in *(127 mm)*/54 Mk 42 Mod 9 ❷; 20-40 rds/min to 24 km *(13 n miles)* anti-surface; 14 km *(7.7 n miles)* anti-aircraft; weight of shell 32 kg.
1 General Electric/General Dynamics 20 mm/76 6-barrelled Mk 15 Vulcan Phalanx ❸; 3,000 rds/min combined to 1.5 km.
Torpedoes: 4—324 mm Mk 32 (2 twin) fixed tubes ❹. 22 Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg.
Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled fixed Mk 36 ❺; IR flares and chaff to 4 km *(2.2 n miles)*. T Mk-6 Fanfare/SLQ-25 Nixie; torpedo decoy. Prairie Masker hull and blade rate noise suppression.
ESM: SLQ-32(V)2 ❻; intercept.
Combat data systems: Signaal Sigma K5 with Link 11.
Weapons control: SWG-1A Harpoon LCS. Mk 68 Mod 3 GFCS. Mk 114 Mod 6 ASW FCS. Mk 1 target designation system. MMS target acquisition sight (for mines, small craft and low-flying aircraft).
Radars: Air search: Lockheed SPS-40B ❼; B-band.
Surface search: Raytheon SPS-10 or Norden SPS-67 ❽; G-band.
Navigation: Marconi LN66; I-band.
Fire control: Western Electric SPG-53D/F ❾; I/J-band.
Tacan: SRN 15.
Sonars: EDO/General Electric SQS-26CX; bow-mounted; active search and attack; medium frequency.

Helicopters: 1 AB 212ASW ❿.

Programmes: In late 1992 the US offered Turkey four of the class. A proposal was put to Congress in June 1993 and four approved for transfer on a five year lease, plus one more, *Elmer Montgomery* for spares, on a grant basis under the Foreign Assistance Act. The latter replaced the former destroyer *Muavenet* which was scrapped after being hit by a Sea Sparrow missile. The second batch of four transferred in 1994. All eight purchased outright in 1999. F 251 decommissioned in 2000, F 257 in 2001, F 252 in 2002 and F 254 in 2003.
Modernisation: Hangar and flight deck enlarged. In 1979 a programme was initiated to fit 3.5 ft bow bulwarks and spray strakes adding 9.1 tons to a displacement. Sea Sparrow SAM replaced by Phalanx 1982-88. Link 11 fitted after transfer. Project 'Kalyon-5' integrated new multipurpose consoles into the combat data system.
Structure: Improved ASROC torpedo reloading capability (note slanting face of bridge structure immediately behind ASROC). Four Mk 32 torpedo tubes are fixed in the midships structure, two to a side, angled out at 45°. The arrangement provides improved loading capability over exposed triple Mk 32 torpedo tubes. A 4,000 lb lightweight anchor is fitted on the port side and an 8,000 lb anchor fits into the after section of the sonar dome.

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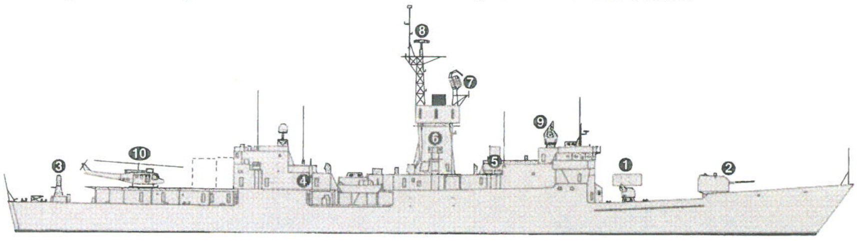

MUAVENET

(Scale 1 : 1,200), Ian Sturton

ZAFER

1/2002, M Declerck / 0533245

KARADENIZ

1/2002, M Declerck / 0533246

6 BURAK (TYPE A 69) CLASS (FFGM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*Recommissioned*
BOZCAADA (ex-*Commandant de Pimodan*)	F 500 (ex-F 787)	Lorient Naval Dockyard	15 July 1975	7 Aug 1976	20 May 1978	22 June 2001
BODRUM (ex-*Drogou*)	F 501 (ex-F 783)	Lorient Naval Dockyard	16 Oct 1973	30 Nov 1974	1 Oct 1976	18 Oct 2001
BANDIRMA (ex-*Quartier Maitre Anquetil*)	F 502 (ex-F 786)	Lorient Naval Dockyard	1 Aug 1975	7 Aug 1976	4 Feb 1978	15 Oct 2001
BEYKOZ (ex-*d'Estienne d'Orves*)	F 503 (ex-F 781)	Lorient Naval Dockyard	1 Sep 1972	1 June 1973	10 Sep 1976	18 Mar 2002
BARTIN (ex-*Amyot d'Inville*)	F 504 (ex-F 782)	Lorient Naval Dockyard	2 July 1973	30 Nov 1974	13 Oct 1976	3 June 2002
BAFRA (ex-*Second Maitre Le Bihan*)	F 505 (ex-F 788)	Lorient Naval Dockyard	1 Nov 1976	13 Aug 1977	7 July 1979	26 June 2002

Displacement, tons: 1,175 standard; 1,250 (1,330 later ships) full load
Dimensions, feet (metres): 264.1 × 33.8 × 18 (sonar) *(80.5 × 10.3 × 5.5)*
Main machinery: 2 SEMT-Pielstick 12 PC2 V 400 diesels; 12,000 hp(m) *(8.82 MW)*; 2 shafts; LIPS cp props
Speed, knots: 23. **Range, miles:** 4,500 at 15 kt
Complement: 104 (10 officers)

Missiles: SSM: 2 Aerospatiale MM 38 Exocet ❶; inertial cruise; active radar homing to 70 km *(40 n miles)* or 42 km *(23 n miles)*) at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: Matra Simbad twin launcher for Mistral ❷; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg. This may be replaced by Stinger.
Guns: 1 DCN/Creusot-Loire 3.9 in *(100 mm)*/55 Mod 68 CADAM automatic ❸; 80 rds/min to 17 km *(9 n miles)* anti-surface; 8 km *(4.4 n miles)* anti-aircraft; weight of shell 13.5 kg.
2 Giat 20 mm ❹; 720 rds/min to 10 km *(5.5 n miles)*.
4—12.7 mm MGs.
Torpedoes: 4 fixed tubes ❺. ECAN L5; dual purpose; active/passive homing to 9.5 km *(5.1 n miles)* at 35 kt; warhead 150 kg; depth to 550 m *(1,800 ft)*.
A/S mortars: 1 Creusot-Loire 375 mm Mk 54 6-tubed trainable launcher ❻; range 1,600 m; warhead 107 kg.
Countermeasures: Decoys: 2 CSEE Dagaie 10-barrelled trainable launchers ❼; chaff and IR flares; H- to J-band.
Nixie torpedo decoy.
ESM: ARBR 16; radar warning.
Weapons control: Thomson-CSF Vega system; CSEE Panda optical secondary director.
Radars: Air/surface search: Thomson-CSF DRBV 51A ❽; G-band.
Navigation: Racal Decca 1226; I-band.
Fire control: Thomson-CSF DRBC 32E ❾; I-band.
Sonars: Thomson Sintra DUBA 25; hull-mounted; search and attack; medium frequency.

Comment: Six 'Type A 69' class bought second-hand from France in October 2000. All, except *Bafra*, refitted at Brest. Work done on propulsion and weapons systems. Exocet MM 38 SSMs procured under separate contract. Operational use is expected to be coastal patrol duties, for which they were designed, in order to release more capable ships for front-line service.

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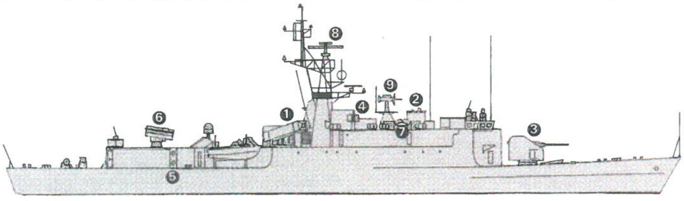

BOZCAADA *(Scale 1 : 900), Ian Sturton* / 0114803

BAFRA *7/2003*, Selçuk Emre* / 0567549

SHIPBORNE AIRCRAFT

Note: There is one AB 204 utility aircraft.

Numbers/Type: 12 Agusta AB 212ASW.
Operational speed: 106 kt *(196 km/h)*.
Service ceiling: 14,200 ft *(4,330 m)*.
Range: 230 n miles *(426 km)*.
Role/Weapon systems: ASV/ASW helicopter with updated systems. Sensors: BAe Ferranti Sea Spray Mk 3 radar, ECM/ESM, MAD, Bendix ASQ-18 dipping sonar. Weapons: ASW; two Mk 46 or 244/S torpedoes. AVS; two Sea Skua missiles.

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AB 212 *1/2002, M Declerck* / 0533250

Numbers/Type: 7 Sikorsky S-70B Seahawk.
Operational speed: 135 kt *(250 km/h)*.
Service ceiling: 10,000 ft *(3,050 m)*.
Range: 600 n miles *(1,110 km)*.
Role/Weapon systems: Contracts placed 3 June 1998 for first four. Second contract for four further aircraft on 31 December 1998. First three delivered 26 April 2002 and second four on 24 July 2003. One aircraft lost in accident. Helras ASW weapon systems ordered. Sensors: APS-124 search radar; Helras dipping sonar. Weapons: ASW: 2 Mk 46 torpedoes; AGM-114B Hellfire II ASM.

UPDATED

SEAHAWK S-70B *6/2002, Selçuk Emre* / 0533251

LAND-BASED MARITIME AIRCRAFT

Numbers/Type: 6 CASA CN-235 D/K MPA.
Operational speed: 240 kt *(445 km/h)*.
Service ceiling: 26,600 ft *(8,110 m)*.
Range: 669 n miles *(1,240 km)*.
Role/Weapon systems: Initial batch of four delivered 25 July 2002 and a further two on 24 July 2003. A total of nine expected by 2006. Long-range maritime patrol for surface surveillance and ASW. Sensors: Ocean Master radar (SAR, ISAR, MTI and air-to-air modes); FLIR; AAR-60 missile warning; DR 3000 A ESM; MAD; Link 11. Weapons: 2 Mk-46 torpedoes.

UPDATED

CN-235MPA *1997, Paul Jackson* / 0056630

PATROL FORCES

Notes: *Kozlu* P 301 and *Kuşadasi* P 302 are listed under 'Vegesack' class in Mine Warfare section.

4 + 5 KILIÇ CLASS (FAST ATTACK CRAFT—MISSILE) (PGGF)

Name	*No*	*Builders*	*Launched*	*Commissioned*
KILIÇ	P 330	Lürssen, Vegesack	15 July 1997	17 Mar 1998
KALKAN	P 331	Taşkizak, Istanbul	22 Sep 1998	22 July 1999
MIZRAK	P 332	Taşkizak, Istanbul	5 Apr 1999	8 June 2000
TUFAN	P 333	Lürssen, Vegesack	25 July 2001	2004
MELTEM	P 334	Pendik Naval Shipyard, Istanbul	Apr 2004	2005
IMBAT	P 335	Pendik Naval Shipyard, Istanbul	2004	2005
ZIPKIN	P 336	Pendik Naval Shipyard, Istanbul	2005	2006
ATAK	P 337	Pendik Naval Shipyard, Istanbul	2006	2007
BORA	P 338	Pendik Naval Shipyard, Istanbul	2006	2007

Displacement, tons: 550 full load
Dimensions, feet (metres): 204.6 × 27.2 × 8.5 *(62.4 × 8.3 × 2.6)*
Main machinery: 4 MTU 16V 956 TB91 diesels; 15,120 hp(m) *(11.1 MW)* sustained; 4 shafts
Speed, knots: 38. **Range, miles:** 1,050 at 30 kt
Complement: 46 (12 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
Guns: 1 Otobreda 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg.
2 Otobreda 40 mm/70 (twin); 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 0.96 kg.
Countermeasures: Decoys: 2 Mk 36 SRBOC chaff launchers.
ESM: Racal Cutlass; intercept.
Combat data systems: Signaal/Thomson-CSF STACOS.
Weapons control: LIROD Mk 2 optronic director; Vesta helo datalink/transponder.
Radars: Surface search: Signaal MW08; G-band.
Fire control: Signaal STING; I/J-band.
Navigation: KH 1007; I-band.

Programmes: Contract for first three signed in May 1993 but there was a delay in confirming it. Further four ordered 19 June 2000 since when a further two craft have been ordered.
Structure: A development of the 'Yildiz' class but with reduced radar cross-section mast and a redesigned bow to improve sea-keeping. The after gun and radars are also different to *Yildiz*.
Operational: First of class arrived in Turkey in April 1998.
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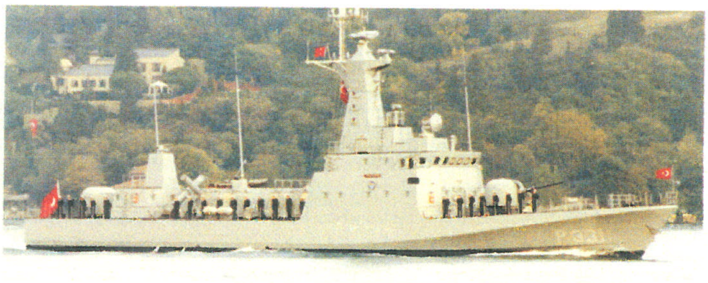
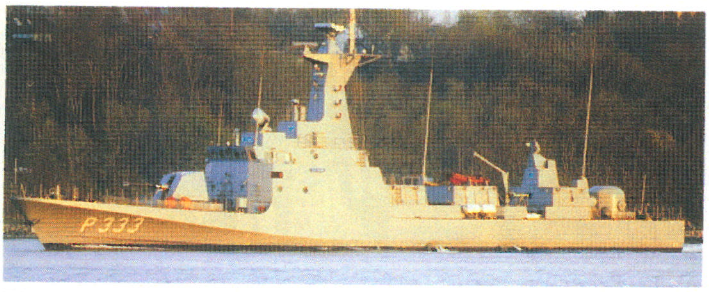

KALKAN *10/2003*, C D Yaylali* / 0567550


TUFAN *4/2003*, Martin Mokrus* / 0567551

2 YILDIZ CLASS (FAST ATTACK CRAFT—MISSILE) (PGGF)

Name	*No*	*Builders*	*Commissioned*
YILDIZ	P 348	Taşkizak Yard, Istanbul	3 June 1996
KARAYEL	P 349	Taşkizak Yard, Istanbul	19 Sep 1996

Displacement, tons: 433 full load
Dimensions, feet (metres): 189.6 oa; 178.5 wl × 25 × 8.8 *(57.8; 54.4 × 7.6 × 2.7)*
Main machinery: 4 MTU 16V 956 TB91 diesels; 15,120 hp(m) *(11.1 MW)* sustained; 4 shafts
Speed, knots: 38. **Range, miles:** 1,050 at 30 kt
Complement: 45 (6 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg.
2 Oerlikon 35 mm/90 (twin); 550 rds/min to 6 km *(3.3 n miles)*; weight of shell 1.55 kg.
Countermeasures: Decoys: 2 Mk 36 SRBOC chaff launchers.
ESM: Racal Cutlass; intercept.
Combat data systems: Signaal/Thomson-CSF TACTICOS.
Weapons control: LIOD Mk 2 optronic director; Vesta helo datalink/transponder.
Radars: Surface search: Siemens/Plessey AW 6 Dolphin; G-band.
Fire control: Oerlikon/Contraves TMX; I/J-band.
Navigation: Racal Decca TM 1226; I-band.

Programmes: Ordered in June 1991. *Karayel* launched 20 June 1995.
Structure: 'Doğan' class hull with much improved weapon systems. A second batch is sufficiently different to merit a separate entry.
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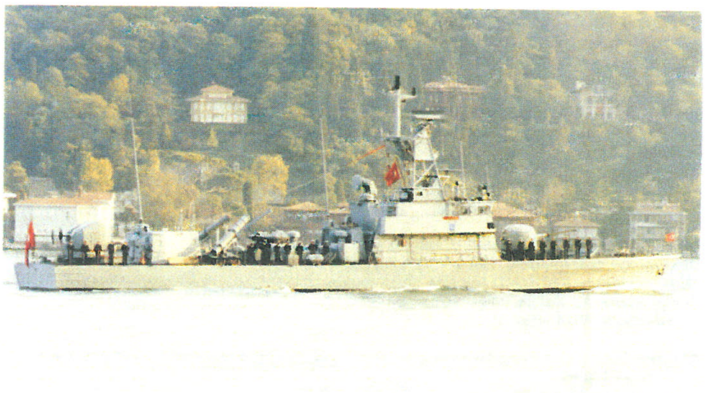
YILDIZ *10/2003*, C D Yaylali* / 0567552

8 DOĞAN CLASS (FAST ATTACK CRAFT—MISSILE) (PGGF)

Name	*No*	*Builders*	*Commissioned*
DOĞAN	P 340	Lürssen, Vegesack	23 Dec 1977
MARTI	P 341	Taşkizak Yard, Istanbul	1 Aug 1978
TAYFUN	P 342	Taşkizak Yard, Istanbul	9 Aug 1979
VOLKAN	P 343	Taşkizak Yard, Istanbul	25 July 1980
RÜZGAR	P 344	Taşkizak Yard, Istanbul	24 May 1985
POYRAZ	P 345	Taşkizak Yard, Istanbul	28 Aug 1986
GURBET	P 346	Taşkizak Yard, Istanbul	24 July 1988
FIRTINA	P 347	Taşkizak Yard, Istanbul	14 Oct 1988

Displacement, tons: 436 full load
Dimensions, feet (metres): 190.6 × 25 × 8.8 *(58.1 × 7.6 × 2.7)*
Main machinery: 4 MTU 16V 956 TB92 diesels; 17,700 hp(m) *(13 MW)* sustained; 4 shafts
Speed, knots: 38. **Range, miles:** 1,050 at 30 kt
Complement: 40 (5 officers)

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg.
2 Oerlikon 35 mm/90 (twin); 550 rds/min to 6 km *(3.3 n miles)*; weight of shell 1.55 kg.
Countermeasures: Decoys: 2 Mk 36 SRBOC chaff launchers.
ESM: MEL Susie (344-347); intercept.
Combat data systems: Signaal mini TACTICOS (344-347).
Weapons control: LIOD Mk 2 optronic director.
Radars: Surface search: Racal Decca 1226; I-band.
Fire control: Signaal WM28/41; I/J-band.

Programmes: First ordered 3 August 1973 to a Lürssen FPB 57 design.
Modernisation: A mid-life programme includes upgrade to the combat data system, communications and ESM. Work on the first four was completed in 2002 while work on the second four is to start in 2004.
Structure: Aluminium superstructure; steel hulls. The last pair were built with optronic directors which are being retrofitted in all, together with an improved Signaal combat data system.
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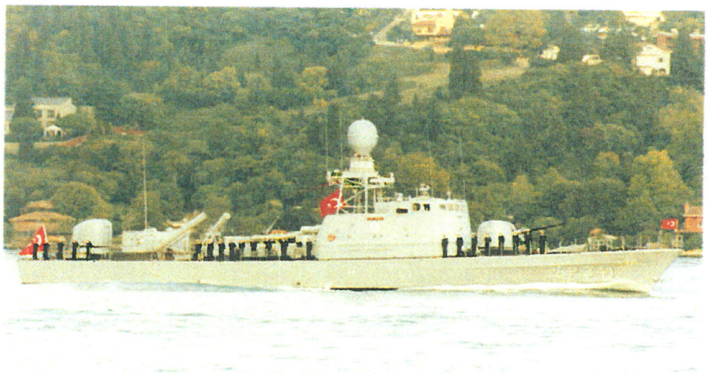
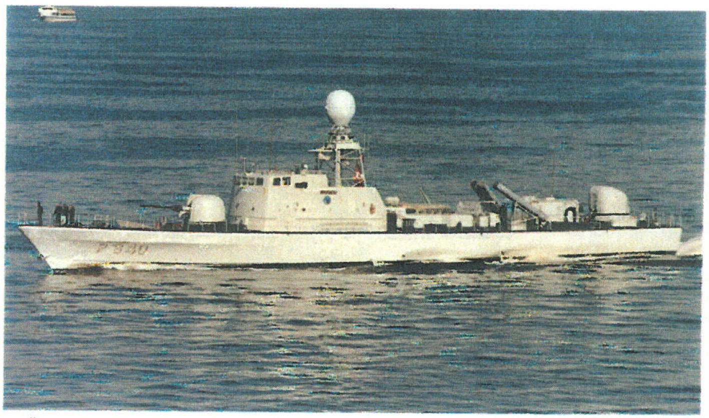

MARTI *10/2003*, C D Yaylali* / 0567553


DOĞAN *4/2000, Selim San* / 0106630

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8 KARTAL CLASS (FAST ATTACK CRAFT—MISSILE) (PTGF)

Name	*No*	*Builders*	*Commissioned*
DENIZKUŞU	P 321 (ex-*P 336*)	Lürssen, Vegesack	9 Mar 1967
ATMACA	P 322 (ex-*P 335*)	Lürssen, Vegesack	9 Mar 1967
ŞAHIN	P 323 (ex-*P 334*)	Lürssen, Vegesack	3 Nov 1966
KARTAL	P 324 (ex-*P 333*)	Lürssen, Vegesack	3 Nov 1966
PELIKAN	P 326	Lürssen, Vegesack	11 Feb 1970
ALBATROS	P 327 (ex-*P 325*)	Lürssen, Vegesack	18 Mar 1970
ŞIMŞEK	P 328 (ex-*P 332*)	Lürssen, Vegesack	6 Nov 1969
KASIRGA	P 329 (ex-*P 338*)	Lürssen, Vegesack	25 Nov 1967

Displacement, tons: 160 standard; 190 full load
Dimensions, feet (metres): 139.4 × 23 × 7.9 *(42.5 × 7 × 2.4)*
Main machinery: 4 MTU MD 16V 538 TB90 diesels; 12,000 hp(m) *(8.82 MW)* sustained; 4 shafts
Speed, knots: 42. **Range, miles:** 500 at 40 kt
Complement: 39 (4 officers)

Missiles: SSM: 2 or 4 Kongsberg Penguin Mk 2; IR homing to 27 km *(14.6 n miles)* at 0.8 Mach; warhead 120 kg.
Guns: 2 Bofors 40 mm/70; 300 rds/min to 12 km *(6.6 n miles)*; weight of shell 0.96 kg.
Torpedoes: 2—21 in *(533 mm)* tubes; anti-surface.
Mines: Can carry 4.
Radars: Surface search: Racal Decca 1226; I-band.

Operational: *Meltem* sunk in collision with Soviet naval training ship *Khasan* in Bosphorus in 1985. Subsequently salvaged but beyond repair. Although these craft are getting old, there are no plans to decommission them in the short term.

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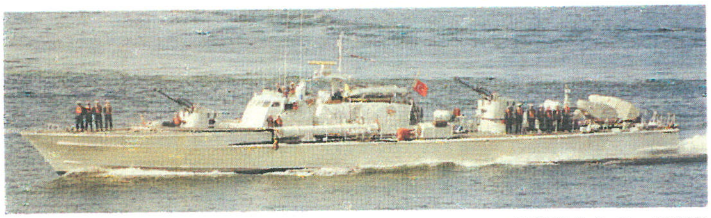

ŞIMŞEK *11/2001,* ***Selim San*** / 0126283

2 HISAR (PC 1638) CLASS (LARGE PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Commissioned*
YARHISAR (ex-*PC 1640*)	P 113	Gunderson, Portland	Sep 1964
AKHISAR (ex-*PC 1641*)	P 114	Gunderson, Portland	Dec 1964

Displacement, tons: 325 standard; 477 full load
Dimensions, feet (metres): 173.7 × 23 × 10.2 *(53 × 7 × 3.1)*
Main machinery: 2 Fairbanks-Morse diesels; 2,800 hp *(2.09 MW)*; 2 shafts
Speed, knots: 19. **Range, miles:** 6,000 at 10 kt
Complement: 31 (3 officers)
Guns: 2 Bofors 40 mm/60.
Depth charges: 4 projectors; 1 rack (9).
Radars: Surface search: Decca 707; I-band.

Comment: Transferred from the US on build. ASW equipment removed. Three paid off in 2000. One in 2002 and the remainder are expected to follow as the 'Kiliç' class enter service.

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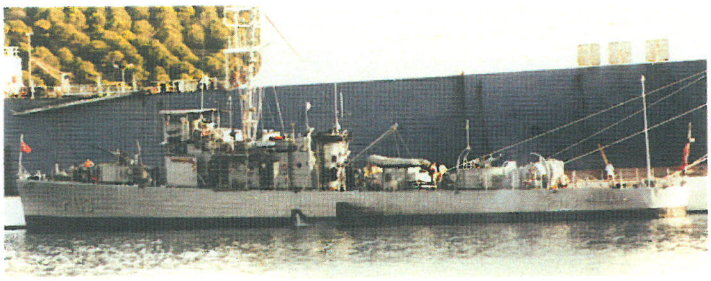

YARHISAR *6/2002,* ***C D Yaylali*** / 0533253

2 TRABZON CLASS (LARGE PATROL CRAFT) (PBO/AGI)

TRABZON (ex-*Gaspe*) P 530 (ex-M 530)

TERME (ex-*Trinity*) P 531 (ex-M 531)

Displacement, tons: 370 standard; 470 full load
Dimensions, feet (metres): 164 × 30.2 × 9.2 *(50 × 9.2 × 2.8)*
Main machinery: 2 GM 12-278A diesels; 2,200 hp *(1.64 MW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 4,500 at 11 kt
Complement: 35 (4 officers)
Guns: 1 Bofors 40 mm/60. 2—12.7 mm MGs.
Radars: Surface search: Racal Decca 1226; I-band.

Comment: All transferred from Canada and recommissioned 31 March 1958. Built by Davie SB Co 1951-53. Of similar type to British 'Ton' class. Pennant numbers changed in 1991 reflecting use as patrol ships with all minesweeping gear removed.

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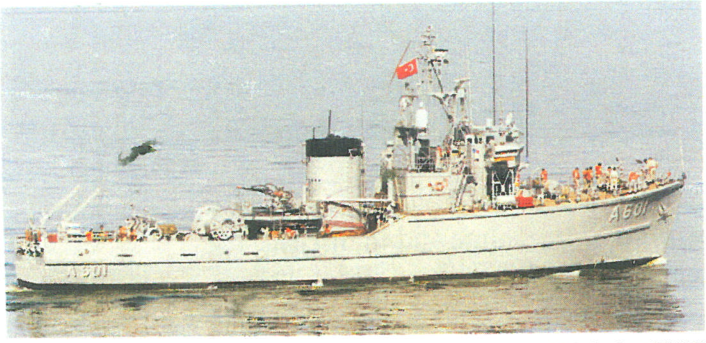

TRABZON CLASS *6/1999,* ***Selim San*** / 0080879

7 TURK CLASS (LARGE PATROL CRAFT) (PC)

Name	*No*	*Builders*	*Commissioned*
AB 27	P 127 (ex-P 1227)	Haliç Shipyard	27 June 1969
AB 28	P 128 (ex-P 1228)	Haliç Shipyard	Apr 1969
AB 29	P 129 (ex-P 1229)	Haliç Shipyard	21 Feb 1969
AB 31	P 131 (ex-P 1231)	Haliç Shipyard	17 Nov 1971
AB 33	P 133 (ex-P 1233)	Camialti Shipyard	15 May 1970
AB 35	P 135 (ex-P 1235)	Taşkizak Shipyard	13 Apr 1976
AB 36	P 136 (ex-P 1236)	Taşkizak Shipyard	13 Apr 1976

Displacement, tons: 170 full load
Dimensions, feet (metres): 132 × 21 × 5.5 *(40.2 × 6.4 × 1.7)*
Main machinery: 4 SACM-AGO V16CSHR diesels; 9,600 hp(m) *(7.06 MW)*
2 cruise diesels; 300 hp(m) *(220 kW)*; 2 shafts
Speed, knots: 22
Complement: 31 (3 officers)
Guns: 1 or 2 Bofors 40 mm/70.
1 Oerlikon 20 mm (in those with 1—40 mm). 2—12.7 mm MGs.
A/S mortars: 1 Mk 20 Mousetrap 4 rocket launcher; range 200 m; warhead 50 kg.
Depth charges: 1 rack.
Radars: Surface search: Racal Decca; I-band.
Sonars: Plessey PMS 26; hull-mounted; active search and attack; high frequency.

Comment: Pennant numbers changed in 1991. Similar to *SG 21* Coast Guard class. One to Georgia (AB 30) in December 1998, one to Azerbaijan (AB 34) in July 2000 and one to Kazakhstan (AB 26) in July 2001.

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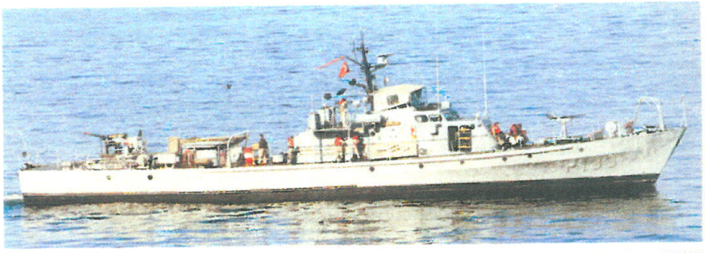

AB 33 *3/2001,* ***Selim San*** / 0114811

4 PGM 71 CLASS (LARGE PATROL CRAFT) (PC)

AB 21-24 (ex-*PGM 104-108*) P 121-124 (ex-P 1221-1224)

Displacement, tons: 130 standard; 147 full load
Dimensions, feet (metres): 101 × 21 × 7 *(30.8 × 6.4 × 2.1)*
Main machinery: 8 GM diesels 2,040 hp *(1.52 MW)*; 2 shafts
Speed, knots: 18.5. **Range, miles:** 1,500 at 10 kt
Complement: 31 (3 officers)
Guns: 1 Bofors 40 mm/60. 4 Oerlikon 20 mm (2 twin). 1—7.62 mm MG.
A/S mortars: 2 Mk 22 Mousetrap 8 rocket launchers; range 200 m; warhead 50 kg.
Depth charges: 2 racks (4).
Radars: Surface search: Raytheon 1500B; I-band.
Sonars: EDO SQS-17A; hull-mounted; active attack; high frequency.

Comment: Built by Peterson, Sturgeon Bay and commissioned 1967-68. Transferred from US almost immediately after completion. Pennant numbers changed in 1991.

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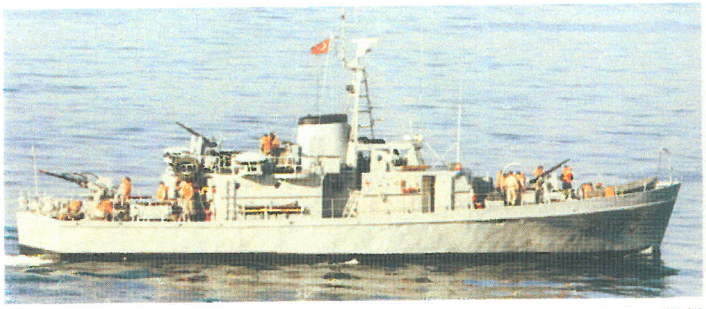

AB 23 *3/2001,* ***Selim San*** / 0114810

MINE WARFARE FORCES

Notes: Minelayers: see *Sarucabey* and *Karamürselbey* under Amphibious Forces.

2 MINELAYER TENDERS (MLI)

ŞAMANDIRA MOTORU-1 Y 91
(ex-Y 132, ex-Y 1149)

ŞAMANDIRA MOTORU-2 Y 92
(ex-Y 1150)

Displacement, tons: 72 full load
Dimensions, feet (metres): 64.3 × 18.7 × 5.9 *(19.6 × 5.7 × 1.8)*
Main machinery: 1 Gray Marine 64 HN9 diesel; 225 hp *(168 kW)*; 1 shaft
Speed, knots: 10
Complement: 8

Comment: Acquired in 1959. Used for laying and recovering mine distribution boxes.

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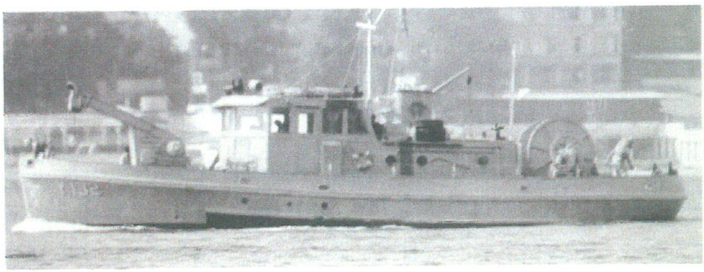

ŞAMANDIRA MOTORU-1 (old number) *9/1991,* ***Erik Laursen***

5 EDINCIK (CIRCÉ) CLASS (MINEHUNTERS) (MHC)

Name	*No*	*Builders*	*Commissioned*	*Recommissioned*
EDINCIK (ex-*Cybèle*)	M 260 (ex-M 712)	CMN, Cherbourg	28 Sep 1972	24 July 1998
EDREMIT (ex-*Calliope*)	M 261 (ex-M 713)	CMN, Cherbourg	28 Sep 1972	28 Aug 1998
ENEZ (ex-*Cérès*)	M 262 (ex-M 716)	CMN, Cherbourg	7 Mar 1973	30 Oct 1998
ERDEK (ex-*Circé*)	M 263 (ex-M 715)	CMN, Cherbourg	18 May 1972	4 Dec 1998
ERDEMLI (ex-*Clio*)	M 264 (ex-M 714)	CMN, Cherbourg	18 May 1972	15 Jan 1999

Displacement, tons: 460 standard; 495 normal; 510 full load
Dimensions, feet (metres): 167 × 29.2 × 11.2 *(50.9 × 8.9 × 3.4)*
Main machinery: 1 MTU diesel; 1,800 hp(m) *(1.32 MW)*; 2 active rudders; 1 shaft
Speed, knots: 15. **Range, miles:** 3,000 at 12 kt
Complement: 48 (5 officers)
Guns: 1 Oerlikon 20 mm.
Countermeasures: MCM: DCN Mintac minehunting system with PAP Plus ROV.
Radars: Navigation: Racal Decca 1229; I-band.
Sonars: Thomson Sintra DUBM 20B; hull-mounted; active search; high frequency.

Comment: Acquired from France on 24 September 1997. Full refits included installation of Mintac system before being handed over.

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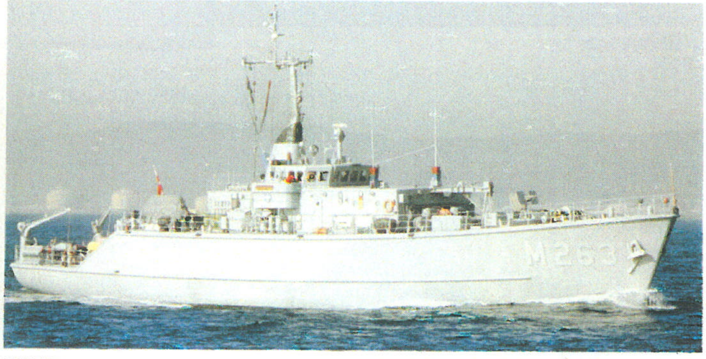

ERDEK *1/2003*, A Campanera i Rovira /* 0567554

1 + 5 AYDIN CLASS (TYPE MHV 54-014) (MHSC)

Name	*No*	*Builders*	*Commissioned*
ALANYA	M 265	Abeking & Rasmussen	2003
AMASRA	M 266	Pendik Naval Shipyard, Istanbul	2004
AYVALIK	M 267	Pendik Naval Shipyard, Istanbul	2005
AKÇAKOCA	M 268	Pendik Naval Shipyard, Istanbul	2006
ANAMUR	M 269	Pendik Naval Shipyard, Istanbul	2006
AKÇAY	M 270	Pendik Naval Shipyard, Istanbul	2007

Displacement, tons: 715 full load
Dimensions, feet (metres): 178.8 × 31.8 × 8.5 *(54.5 × 9.7 × 2.6)*
Main machinery: 2 MTU 8V 396 TB84 diesels; 2 Voith-Schneider props; 2 Schottel bow thrusters
Speed, knots: 14
Complement: 53 (6 officers)
Guns: 1 Otobreda 30 mm. 2—12.7 mm MGs.
Countermeasures: MCM: 2 ECA PAP 104 Mk 5. 1 Oropesa mechanical sweep.
Combat data systems: Alenia Marconi Nautis-M.
Radars: Navigation: KH 1007; I-band.
Sonars: Thomson Marconi Type 2093; VDS; active high frequency.

Comment: Ordered from Abeking & Rasmussen and Lürssen on 30 July 1999. First one built in Bremen, remainder in Turkey. The design is based on the German Type 332 but with different propulsion and mine countermeasures equipment. First of class laid down 6 November 2000, second on 25 July 2001, third on 25 July 2002 and fourth on 24 July 2003. All to complete by 2007.

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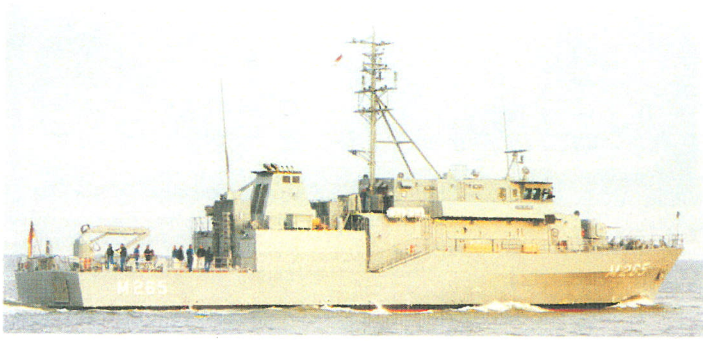
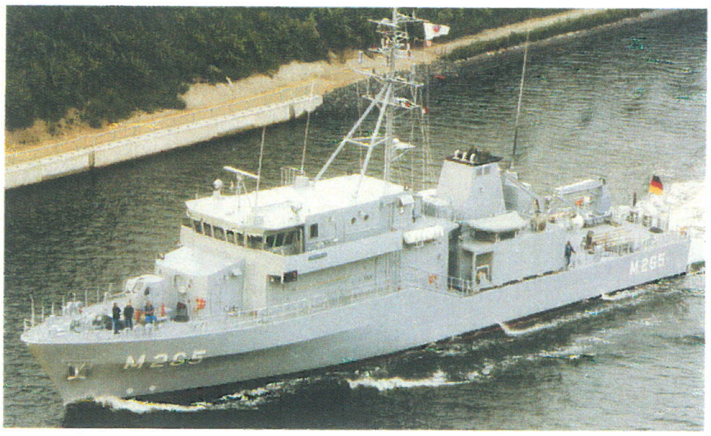


ALANYA *5/2003*, Frank Findler /* 0552758



ALANYA *6/2003*, Martin Mokrus /* 0567555

6 VEGESACK CLASS (MSC/AGS/PBO)

Name	*No*	*Builders*	*Commissioned*
KARAMÜRSEL (ex-*Worms* M 1253)	M 520	Amiot, Cherbourg	30 Apr 1960
KEREMPE (ex-*Detmold* M 1252)	M 521	Amiot, Cherbourg	20 Feb 1960
KILIMLI (ex-*Siegen* M 1254)	M 522	Amiot, Cherbourg	9 July 1960
KOZLU (ex-*Hameln* M 1251)	P 301 (ex-M 523)	Amiot, Cherbourg	15 Oct 1959
KUŞADASI (ex-*Vegesack* M 1250)	P 302 (ex-M 524)	Amiot, Cherbourg	19 Sep 1959
KEMER (ex-*Passau* M 1255)	A 582 (ex-M 525)	Amiot, Cherbourg	15 Oct 1960

Displacement, tons: 362 standard; 378 full load
Dimensions, feet (metres): 155.1 × 28.2 × 9.5 *(47.3 × 8.6 × 2.9)*
Main machinery: 2 MTU MB diesels; 1,500 hp(m) *(1.1 MW)*; 2 shafts; cp props
Speed, knots: 15
Complement: 33 (2 officers)
Guns: 2 Oerlikon 20 mm (twin).
Radars: Navigation: Decca 707; I-band.
Sonars: Simrad; active mine detection; high frequency.

Comment: Transferred by West Germany and recommissioned in the mid-1970s. Sonars were fitted from 1989. *Kemer* paid off in 1998 but returned as a survey ship in 1999. *Kozlu* and *Kuşadasi* similarly refitted as patrol ships in 1999.

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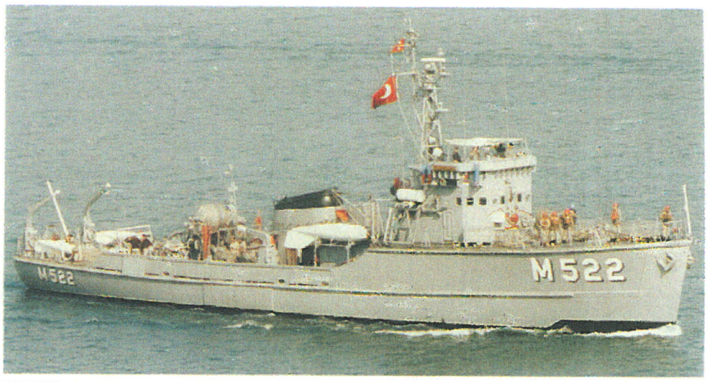

KILIMLI *4/1996, van Ginderen Collection /* 0080884

9 ADJUTANT, MSC 268 and MSC 294 CLASSES (MINESWEEPERS—COASTAL) (MSC)

SAMSUN (ex-*MSC 268*) M 510
SINOP (ex-*MSC 270*) M 511
SÜRMENE (ex-*MSC 271*) M 512
SEDDÜLBAHIR (ex-*MSC 272*) M 513
SILIFKE (ex-*MSC 304*) M 514
SAROS (ex-*MSC 305*) M 515
SIGACIK (ex-*MSC 311*) M 516
SAPANCA (ex-*MSC 312*) M 517
SARIYER (ex-*MSC 315*) M 518

Displacement, tons: 320 standard; 370 full load
Dimensions, feet (metres): 141 × 26 × 8.3 *(43 × 8 × 2.6)*
Main machinery: 4 GM 6-71 diesels; 696 hp *(519 kW)* sustained; 2 shafts (M 510-M 513)
2 Waukesha L 1616 diesels; 1,200 hp *(895 kW)*; 2 shafts (M 514-M 518)
Speed, knots: 14. **Range, miles:** 2,500 at 10 kt
Complement: 35 (2 officers)
Guns: 2 Oerlikon 20 mm (twin).
Radars: Navigation: Racal Decca 1226; I-band.
Sonars: UQS-1D; hull-mounted mine search; high frequency.

Comment: Built 1955-59 (M 510-M 513) and 1965-67 (M 514-M 518). Transferred from US. Commissioning dates in the Turkish Navy were respectively: 3 October 1958, 7 February 1959, 30 March 1959, 1 May 1959, 21 March 1966, 25 October 1966, 20 December 1965, 20 December 1965 and 7 December 1967. Height of funnels and bridge arrangements vary.

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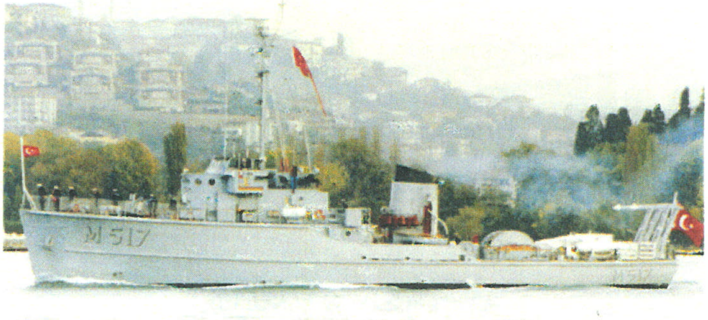
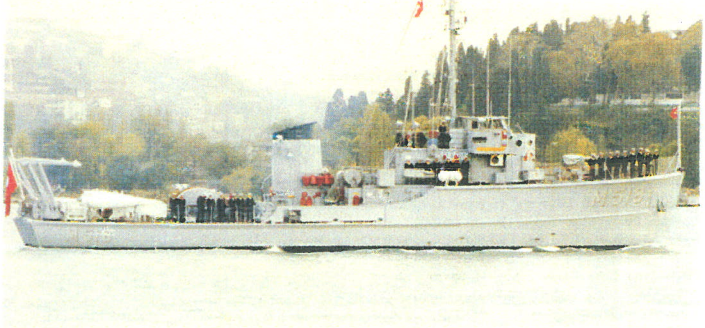


SAPANCA *10/2003*, C D Yaylali /* 0567556



SARIYER *10/2003*, C D Yaylali /* 0567557

4 COVE CLASS (MINESWEEPERS—INSHORE) (MSI)

Name	*No*	*Builders*	*Commissioned*
FOÇA (ex-*MSI 15*)	M 500	Peterson, WI	19 Apr 1968
FETHIYE (ex-*MSI 16*)	M 501	Peterson, WI	24 Apr 1968
FATSA (ex-*MSI 17*)	M 502	Peterson, WI	21 Mar 1968
FINIKE (ex-*MSI 18*)	M 503	Peterson, WI	26 Apr 1968

Displacement, tons: 180 standard; 235 full load
Dimensions, feet (metres): 111.9 × 23.5 × 7.9 *(34 × 7.1 × 2.4)*
Main machinery: 4 GM 6-71 diesels; 696 hp *(520 kW)* sustained; 2 shafts
Speed, knots: 13. **Range, miles:** 900 at 11 kt
Complement: 25 (3 officers)
Guns: 1—12.7 mm MG.
Radars: Navigation: I-band.

Comment: Built in US and transferred under MAP at Boston, Massachusetts, August-December 1967.

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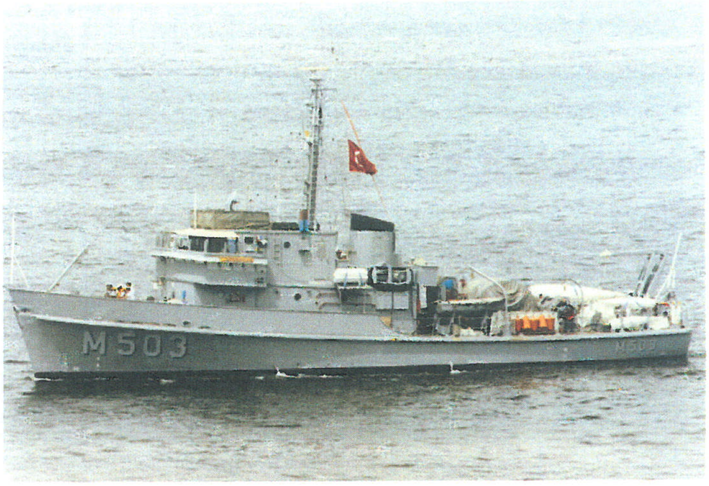

FINIKE — *5/2001, Selim San* / 0114808

8 MINEHUNTING TENDERS (YAG/YDT)

DALGIÇ 2 (ex-*MTB 2*) P 312
MTB 3 P 313
MTB 4 P 314
MTB 5 P 315
MTB 6 P 316
MTB 7 P 317
MTB 8 P 318
MTB 9 P 319

Displacement, tons: 70 standard
Dimensions, feet (metres): 71.5 × 13.8 × 8.5 *(21.8 × 4.2 × 2.6)*
Main machinery: 2 diesels; 2,000 hp(m) *(1.47 MW)*; 2 shafts
Speed, knots: 20
Guns: 1 Oerlikon 20 mm or 1—12.7 mm MG (aft) (in some).

Comment: All launched in 1942. Now employed as minehunting base ships (P 313-319) and diver support craft (P 312).

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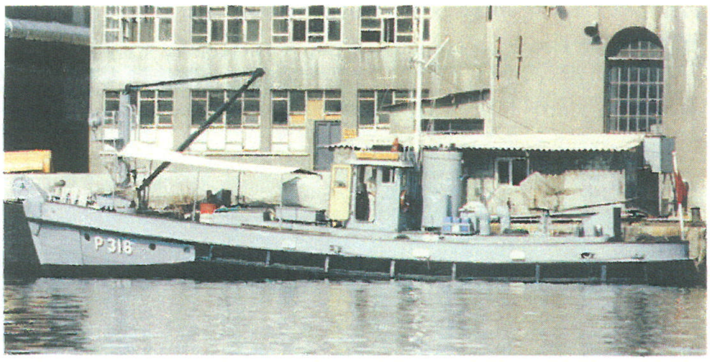

MTB 6 — *7/1995, van Ginderen Collection* / 0080886

AMPHIBIOUS FORCES

Notes: (1) The prefix 'Ç' for smaller amphibious vessels stands for 'Çikartma Gemisi' (landing vessel) and indicates that the craft are earmarked for national rather than NATO control.
(2) Subject to funding, there are plans to procure a landing platform dock capable of both military and humanitarian assistance operations. It is envisaged that the ship will be capable of carrying a battalion and of operating helicopters.

1 OSMAN GAZI CLASS (LSTH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
OSMAN GAZI	NL 125	Taşkizak Yard, Istanbul	20 July 1990	27 July 1994

Displacement, tons: 3,773 full load
Dimensions, feet (metres): 344.5 × 52.8 × 15.7 *(105 × 16.1 × 4.8)*
Main machinery: 2 MTU 12V 1163 TB73 diesels; 8,800 hp(m) *(6.47 MW)*; 2 shafts
Speed, knots: 17. **Range, miles:** 4,000 at 15 kt
Military lift: 900 troops; 15 tanks; 4 LCVPs
Guns: 2 Oerlikon 35 mm/90 (twin). 4 Bofors 40 mm/70 (2 twin). 2 Oerlikon 20 mm.
Radars: Navigation: Racal Decca; I-band.
Helicopters: Platform for 1 large.

Comment: Laid down 7 July 1989. Full NBCD protection. Equipped with a support weapons co-ordination centre to control amphibious operations. The ship has about a 50 per cent increase in military lift capacity compared with the 'Sarucabey' class. Second of class cancelled in 1991 and *Osman Gazi* took a long time to complete. Marisat fitted.

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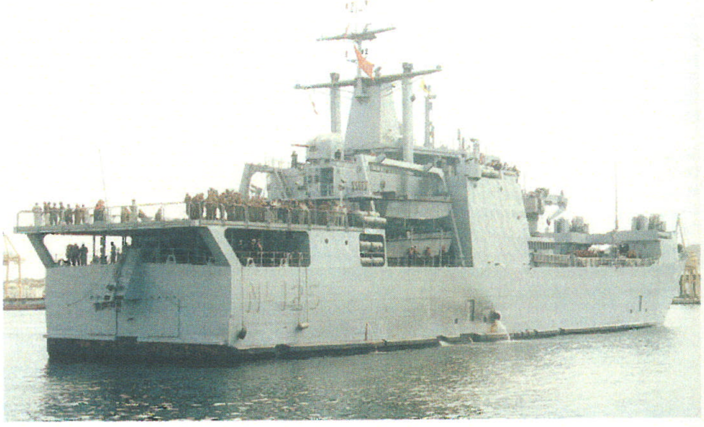
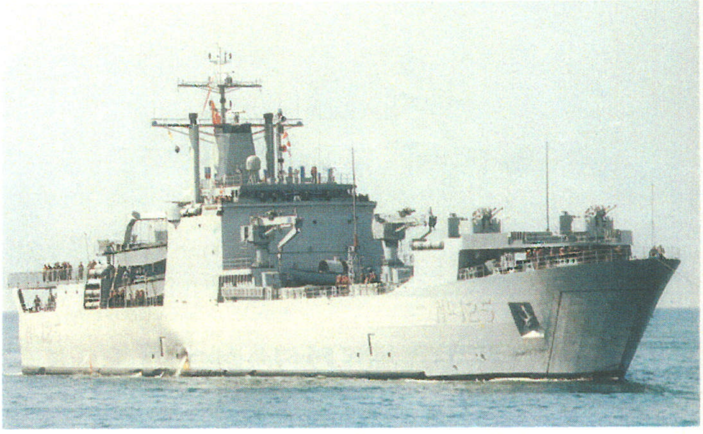


OSMAN GAZI — *5/1998, Diego Quevedo* / 0050292



OSMAN GAZI — *5/1998, Diego Quevedo* / 0050291

2 ERTUĞRUL (TERREBONNE PARISH) CLASS (LST)

Name	*No*	*Builders*	*Commissioned*
ERTUĞRUL (ex-*Windham County* LST 1170)	L 401	Christy Corporation	15 Dec 1954
SERDAR (ex-*Westchester County* LST 1167)	L 402	Christy Corporation	10 Mar 1954

Displacement, tons: 2,590 light; 5,800 full load
Dimensions, feet (metres): 384 × 55 × 17 *(117.1 × 16.8 × 5.2)*
Main machinery: 4 GM 16-278A diesels; 6,000 hp *(4.48 MW)*; 2 shafts; cp props
Speed, knots: 15
Complement: 163 (14 officers)
Military lift: 395 troops; 2,200 tons cargo; 4 LCVPs
Guns: 6 USN 3 in *(76 mm)*/50 (3 twin).
Weapons control: 2 Mk 63 GFCS.
Radars: Surface search: Racal Decca 1226; I-band.
Fire control: 2 Western Electric Mk 34; I/J-band.

Comment: Transferred by US and recommissioned 3 October 1973 and 24 February 1975 respectively. Purchased outright 6 August 1987. Marisat fitted.

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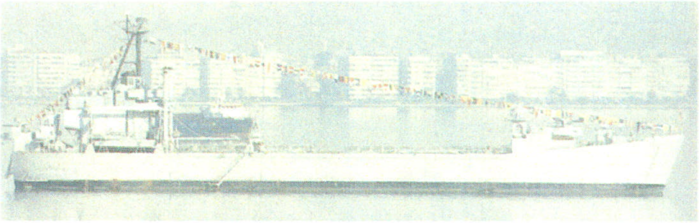

ERTUĞRUL — *9/1998, Selim San* / 0050293

1 EDIC TYPE (LCT)

120

Displacement, tons: 580 full load
Dimensions, feet (metres): 186.9 × 39.4 × 4.6 *(57 × 12 × 1.4)*
Main machinery: 3 GM 6-71 diesels; 522 hp *(390 kW)* sustained; 3 shafts
Speed, knots: 8.5. **Range, miles:** 600 at 10 kt
Complement: 15
Military lift: 100 troops; up to 5 tanks
Guns: 2 Oerlikon 20 mm. 2—12.7 mm MGs.
Radars: Navigation: Racal Decca; I-band.

Comment: Vessel built at Gölcük Naval Shipyard in 1973. French EDIC type.

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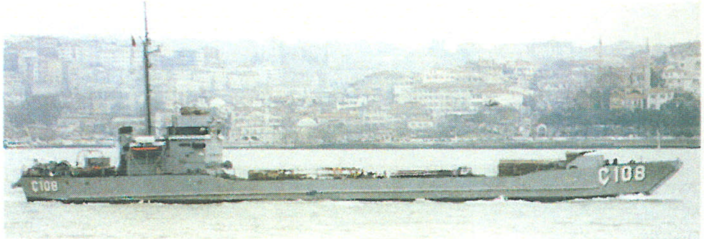


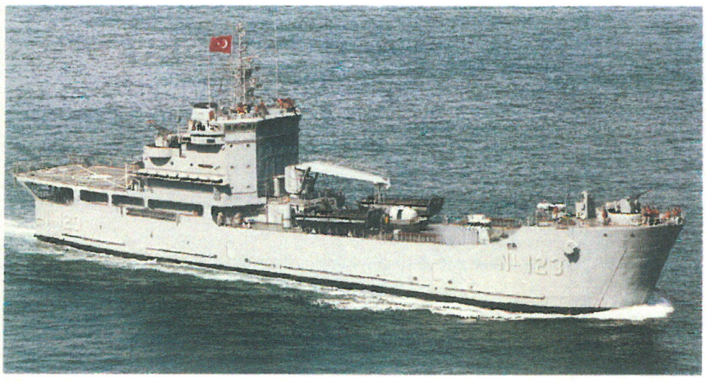
EDIC TYPE — *2/1996, C D Yaylali* / 0080888

2 SARUCABEY CLASS (LSTH/ML)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SARUCABEY	NL 123	Taşkizak Naval Yard	30 July 1981	17 July 1984
KARAMÜRSELBEY	NL 124	Taşkizak Naval Yard	26 July 1984	19 June 1987

Displacement, tons: 2,600 full load
Dimensions, feet (metres): 301.8 × 45.9 × 7.5 *(92 × 14 × 2.3)*
Main machinery: 3 diesels; 4,320 hp *(3.2 MW)*; 3 shafts
Speed, knots: 14
Military lift: 600 troops; 11 tanks; 12 jeeps; 2 LCVPs
Guns: 3 Bofors 40 mm/70. 4 Oerlikon 20 mm (2 twin).
Mines: 150 in lieu of amphibious lift.
Radars: Navigation: Racal Decca 1226; I-band.
Helicopters: Platform only.

Comment: *Sarucabey* is an enlarged Çakabey design more suitable for naval requirements. Dual-purpose minelayers. NL 124 has superstructure one deck lower. ***UPDATED***



SARUCABEY *7/2000, Michael Nitz* / 0106640

24 LCT

Ç 123, Ç 125-129, Ç 132-135, Ç 137-150

Displacement, tons: 600 standard
Dimensions, feet (metres): 195.5 × 38 × 10.5 *(59.6 × 11.6 × 3.2)*
Main machinery: 3 GM 6-71 diesels; 522 hp *(390 kW)* sustained; 3 shafts *(119-138)* or 3 MTU diesels; 900 hp(m) *(662 kW)*; 3 shafts *(139-150)*
Speed, knots: 8.5. **Range, miles:** 600 at 8 kt
Complement: 17 (1 officer)
Military lift: 100 troops; 5 tanks
Guns: 2 Oerlikon 20 mm. 2—12.7 mm MGs.
Radars: Navigation: Racal Decca; I-band.

Comment: Follow-on to the *Ç 107* type started building in 1977. *Ç 130* and *Ç 131* transferred to Libya January 1980 and *Ç 136* sunk in 1985. The delivery rate was about two per year from the Taşkizak and Gölcük yards until 1987. Then two launched in July 1987 and commissioned in 1991. Last three completed in 1992. Dimensions given are for *Ç 139* onwards, earlier craft are 3.6 m shorter and have less freeboard.

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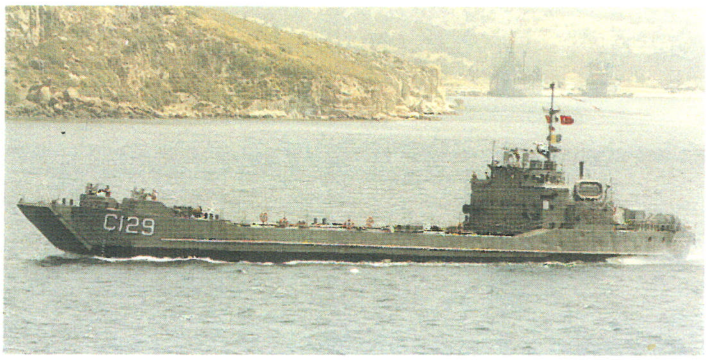

Ç 129 *8/1995, Selçuk Emre* / 0080889

18 LCM 8 TYPE

Ç 305, 308, 312-314, 316, 319, 321-331

Displacement, tons: 58 light; 113 full load
Dimensions, feet (metres): 72 × 20.5 × 4.8 *(22 × 6.3 × 1.4)*
Main machinery: 4 GM 6-71 diesels; 696 hp *(520 kW)* sustained; 2 shafts
Speed, knots: 9.5
Complement: 9
Military lift: 60 tons or 140 troops
Guns: 2—12.7 mm MGs.

Comment: Up to *Ç 319* built by Taşkizak and Haliç in 1965-66. *Ç 321-331* built by Taşkizak and Naldöken in 1987-89.

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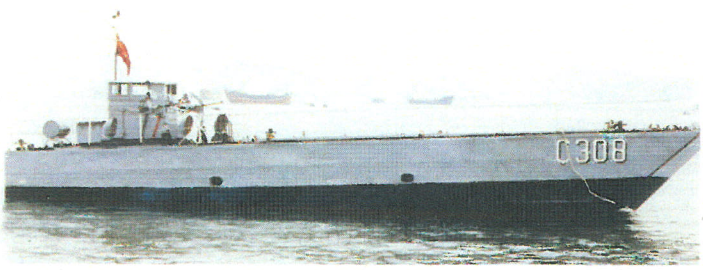
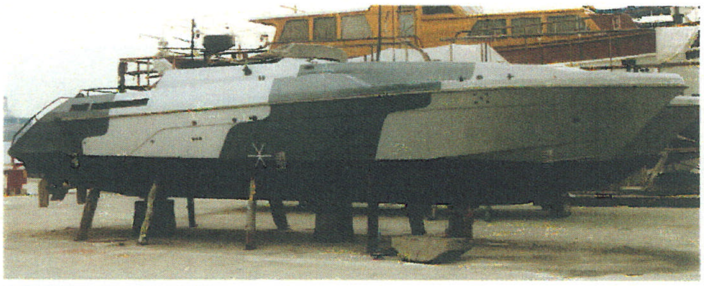


Ç 308 *6/2003*, Turkish Navy* / 0567540

2 FAST INTERVENTION CRAFT (HSIC)

Displacement, tons: 18 full load
Dimensions, feet (metres): 55.1 × 13.2 × 3.2 *(16.8 × 4.04 × 1.0)*
Main machinery: 2 MTU 12V 183 TE94 diesels; 2,588 hp(m) *(1.93 MW)*; 2 Arneson ASD 12 B1L surface drives
Speed, knots: 50+
Complement: 2 plus 10 mission crew

Comment: Capable of carrying a RIB and used by Special Forces. Details are speculative. ***VERIFIED***



FAST INTERVENTION CRAFT *10/2000* / 0106641

SURVEY SHIPS

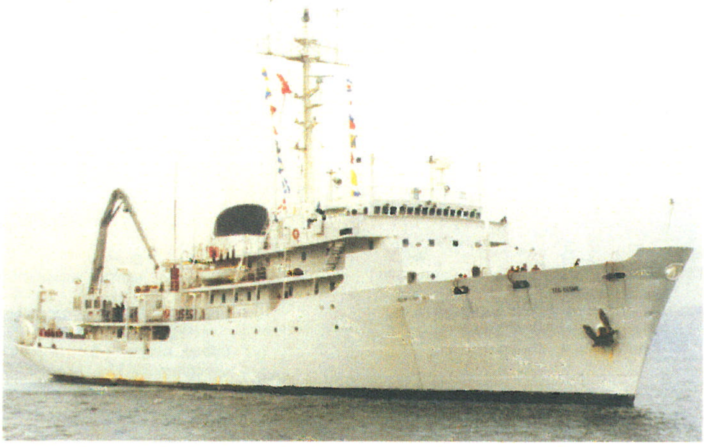
Notes: *Kemer* A 582 (ex-M 525) is listed under 'Vegesack' class in Mine Warfare Forces.

2 SILAS BENT CLASS (AGS)

Name	*No*	*Builders*	*Commissioned*
ÇESME (ex-*Silas Bent*)	A 599 (ex-TAGS 26)	American SB Co, Lorain	23 July 1965
ÇANADARLI (ex-*Kane*)	A 588 (ex-TAGS 27)	Christy Corp, Sturgeon Bay	19 May 1967

Displacement, tons: 2,843 full load
Dimensions, feet (metres): 285.3 × 48 × 15.1 *(87 × 14.6 × 4.6)*
Main machinery: Diesel-electric; 2 Alco diesel generators; 1 Westinghouse/GE motor; 3,600 hp *(2.69 MW)*; 1 shaft; cp prop; bow thruster 350 hp *(261 kW)*
Speed, knots: 15. **Range, miles:** 12,000 at 14 kt
Complement: 31 plus 28 spare
Radars: Navigation: RM 1650/9X; I-band.

Comment: *Çesme* transferred from US on 28 October 1999 and *Canadarli* on 14 March 2001. ***UPDATED***



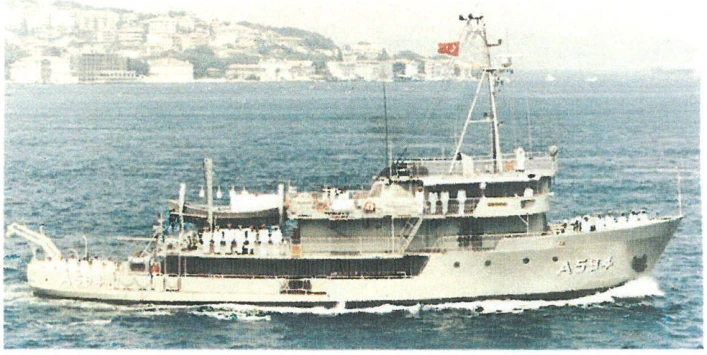
ÇESME *6/2003*, Selçuk Emre* / 0567558

1 SURVEY SHIP (AGS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ÇUBUKLU (ex-*Y 1251*)	A 594	Gölcük	17 Nov 1983	24 June 1987

Displacement, tons: 680 full load
Dimensions, feet (metres): 132.8 × 31.5 × 10.5 *(40.5 × 9.6 × 3.2)*
Main machinery: 1 MWM diesel; 820 hp(m) *(603 kW)*; 1 shaft; cp prop
Speed, knots: 11
Complement: 37 (6 officers)
Guns: 2 Oerlikon 20 mm.
Radars: Navigation: Racal Decca; I-band.

Comment: Qubit advanced integrated navigation and data processing system fitted in 1991. ***VERIFIED***



ÇUBUKLU *6/1997, Turkish Navy* / 0050296

2 SURVEY CRAFT (AGSC)

MESAHA 1 Y 35 **MESAHA 2** Y 36

Displacement, tons: 38 full load
Dimensions, feet (metres): 52.2 × 14.8 × 4.3 *(15.9 × 4.5 × 1.3)*
Main machinery: 2 GM 6-71 diesels; 348 hp *(260 kW)* sustained; 2 shafts
Speed, knots: 10. **Range, miles:** 600 at 10 kt
Complement: 9

Comment: Completed in 1994 and took the names and pennant numbers of their deleted predecessors.

VERIFIED

MESAHA 2 *9/1994, C D Yaylali* / 0080890

TRAINING SHIPS

2 RHEIN CLASS (AG/AX)

Name	*No*	*Builders*	*Commissioned*
CEZAYIRLI GAZI HASAN PAŞA (ex-*Elbe*)	A 579	Schliekerwerft, Hamburg	17 Apr 1962
SOKOLLU MEHMET PAŞA (ex-*Donau*)	A 577	Schlichting, Travemünde	23 May 1964

Displacement, tons: 2,370 standard; 2,940 full load
Dimensions, feet (metres): 322.1 × 38.8 × 14.4 *(98.2 × 11.8 × 4.4)*
Main machinery: Diesel-electric; 6 MTU MD diesels; 14,400 hp(m) *(10.58 MW)*; 2 Siemens motors; 11,400 hp(m) *(8.38 MW)*; 2 shafts
Speed, knots: 20.5. **Range, miles:** 1,625 at 15 kt
Complement: 188 (15 officers)
Guns: 2 Creusot-Loire 3.9 in *(100 mm)*/55. 4 Bofors 40 mm/60.
Radars: Surface search: Signaal DA02; E/F-band.
Fire control: 2 Signaal M 45; I/J-band.

Comment: *Elbe* transferred from Germany on 15 March 1993, taking over the same name and pennant number as the former *Ruhr*. *Donau* transferred 13 March 1995 taking the same name and pennant number as the deleted *Isar*.

UPDATED

SOKOLLU MEHMET PAŞA *3/2002, Schaeffer/Marsan* / 0533256

8 TRAINING CRAFT (AXL)

Name	*No*	*Builders*	*Commissioned*
E 1	A 1531	Bora-Duzgit	22 July 1999
E 2	A 1532	Bora-Duzgit	22 July 1999
E 3	A 1533	Bora-Duzgit	8 June 2000
E 4	A 1534	Bora-Duzgit	8 June 2000
E 5	A 1535	Bora-Duzgit	8 June 2000
E 6	A 1536	Bora-Duzgit	8 June 2000
E 7	A 1537	Bora-Duzgit	8 June 2000
E 8	A 1538	Bora-Duzgit	8 June 2000

Displacement, tons: 94 full load
Dimensions, feet (metres): 94.5 × 19.7 × 6.2 *(28.8 × 6 × 1.9)*
Main machinery: 1 MTU diesel; 1 shaft
Speed, knots: 12. **Range, miles:** 240 at 12 kt
Complement: 15

Comment: Naval Academy training craft ordered in 1998.

VERIFIED

E 1 *7/1999, Selçuk Emre* / 0080892

AUXILIARIES

1 TRANSPORT SHIP (AK)

Name	*No*	*Builders*	*Commissioned*	*Recommissioned*
ISKENDERUN	A 1600	Camialti Shipyard, Istanbul	1991	25 July 2002

Displacement, tons: 10,583 gross; 3,872 net
Dimensions, feet (metres): 418.4 × 64.0 × 17.7 *(127.5 × 19.5 × 5.4)*

Main machinery: 4 Skoda and Sulzer diesels; 16,800 hp *(12.52 MW)*; 2 shafts
Speed, knots: 15.5
Complement: 129 (11 officers)

Comment: Car ferry (214 cars and passengers) built to Polish design. Commissioned in Turkish Navy on 25 July 2002.

UPDATED

ISKENDERUN *7/2002, Selçuk Emre* / 0533257

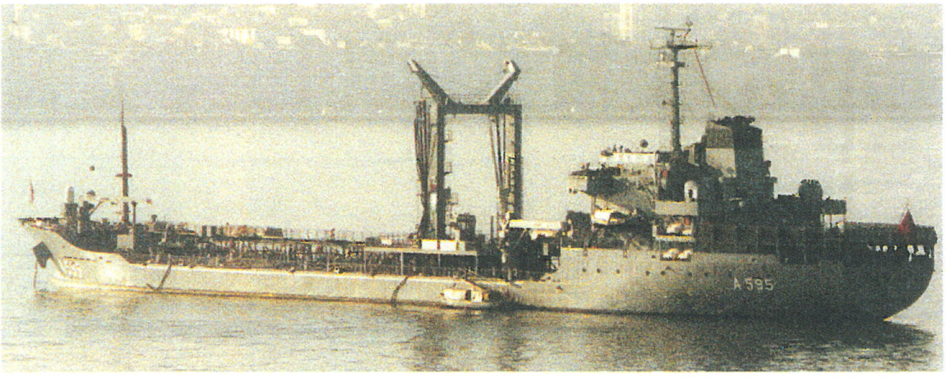
2 FLEET SUPPORT SHIPS (AORH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
AKAR	A 580	Gölcük Naval Dockyard	5 Aug 1982	17 Nov 1983	9 Sep 1987
YARBAY KUDRET GÜNGÖR	A 595	Sedef Shipyard, Istanbul	5 Nov 1993	15 Nov 1994	24 Oct 1995

Displacement, tons: 19,350 full load
Dimensions, feet (metres): 475.9 × 74.8 × 27.6 *(145.1 × 22.8 × 8.4)*
Main machinery: 1 diesel; 6,500 hp(m) *(4.78 MW)*; 1 shaft
Speed, knots: 16. **Range, miles:** 6,000 at 14 kt
Complement: 203 (14 officers)
Cargo capacity: 16,000 tons oil fuel (A 580); 9,980 tons oil fuel (A 595); 2,700 tons water (A 595); 80 tons hub oil (A 595); 500 m^3 stores (A 595)
Guns: 2—3 in *(76 mm)*/50 (twin) Mk 34 (A 580). 1—20 mm/76 Mk 15 Vulcan Phalanx (A 595). 2 Bofors 40 mm/70.
Weapons control: Mk 63 GFCS (A 580).
Radars: Fire control: SPG-34; I-band (A 580).
Navigation: Racal Decca 1226; I-band.
Helicopters: Platform for 1 medium.

Comment: Helicopter flight deck aft. *Akar* is primarily a tanker whereas the second ship of the same type is classified as logistic support vessel. *Güngör* was the first naval ship to be built at a civilian yard in Turkey.

UPDATED


YARBAY KUDRET GÜNGÖR *10/1996* / 0080897

1 SUPPORT TANKER (AOTL)

Name	*No*	*Builders*	*Launched*	*Commissioned*
TAŞKIZAK	A 570	Taşkizak Naval DY, Istanbul	28 July 1983	14 Aug 1985

Displacement, tons: 1,440 full load
Dimensions, feet (metres): 211.9 × 30.8 × 11.5 *(64.6 × 9.4 × 3.5)*
Main machinery: 1 diesel; 1,400 hp(m) *(1.03 MW)*; 1 shaft
Speed, knots: 13
Complement: 57
Cargo capacity: 800 tons
Guns: 1 Bofors 40 mm/60. 2 Oerlikon 20 mm.
Radars: Navigation: Racal Decca 1226; I-band.

Comment: Laid down 20 July 1983.

VERIFIED

TAŞKIZAK ('Doğan' class in background) *5/1990, A Sheldon Duplaix* / 0080893

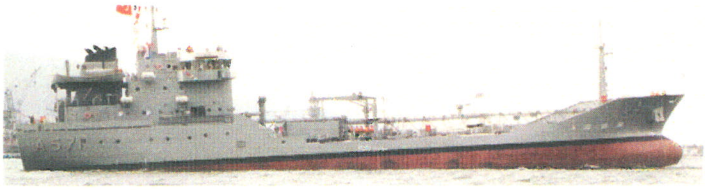
2 SUPPORT TANKERS (AOT)

Name	*No*	*Builders*	*Commissioned*
ALBAY HAKKI BURAK	A 571	RMK Tuzla, Istanbul	21 Nov 1999
YUZBASI IHSAN TOLUNAY	A 572	RMK Tuzla, Istanbul	8 June 2000

Displacement, tons: 3,300 full load
Dimensions, feet (metres): 267.1 × 40 × 16.4 *(81.4 × 12.2 × 5)*
Main machinery: 2 Caterpillar 3606TA diesels; 5,522 hp(m) *(4.06 MW)*; 2 shafts
Speed, knots: 15
Complement: 50
Cargo capacity: 2,355 m^3 dieso

Comment: Ordered in 1998.

VERIFIED


ALBAY HAKKI BURAK *6/2002, Selçuk Emre* / 0533258

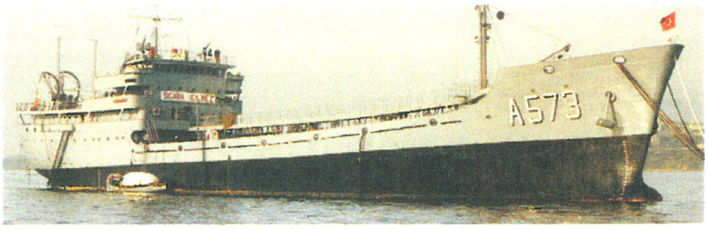
1 SUPPORT TANKER (AORL)

Name	*No*	*Builders*	*Commissioned*
BINBAŞI SADETTIN GÜRCAN	A 573	Taşkizak Naval DY, Istanbul	4 Sep 1970

Displacement, tons: 1,505 standard; 4,460 full load
Dimensions, feet (metres): 294.2 × 38.7 × 17.7 *(89.7 × 11.8 × 5.4)*
Main machinery: Diesel-electric; 4 GM 16-567A diesels; 5,600 hp *(4.12 MW)*; 4 generators; 2 motors; 4,400 hp *(3.28 MW)*; 2 shafts
Speed, knots: 16
Complement: 63
Guns: 2 Oerlikon 20 mm.
Radars: Navigation: E/F-band.

Comment: Main armament removed. Can be used for replenishment at sea.

UPDATED


BINBAŞI SADETTIN GÜRCAN *6/1995, Turkish Navy* / 0080895

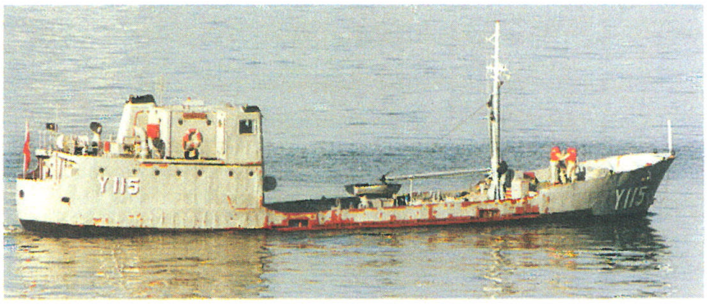
6 WATER TANKERS (YW)

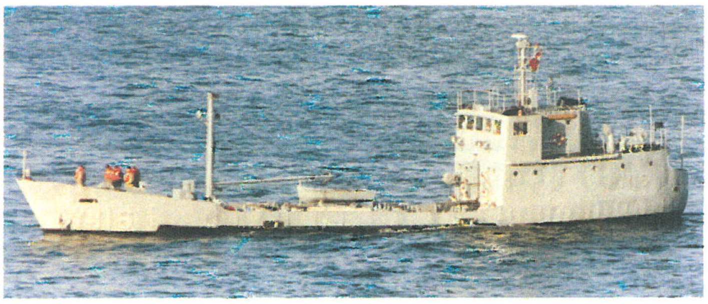
PINAR 1-6 Y 111-116 (ex-Y 1211-1216)

Displacement, tons: 300 full load
Dimensions, feet (metres): 110.2 × 27.9 × 5.9 *(33.6 × 8.5 × 1.8)*
Main machinery: 1 GM diesel; 225 hp *(168 kW)*; 1 shaft
Speed, knots: 11
Complement: 12
Cargo capacity: 150 tons

Comment: Built by Taşkizak Naval Yard. Details given for last four, sisters to harbour tankers H 500-502. First pair differ from these particulars and are individually different. *Pinar 1* (launched 1938) of 490 tons displacement with one 240 hp *(179 kW)* diesel, and *Pinar 2* built in 1958 of 1,300 tons full load, 167.3 × 27.9 ft *(51 × 8.5 m)*.

VERIFIED


PINAR 5 *10/1996, Selim San* / 0080900


PINAR 6 *12/2000, Selim San* / 0106643

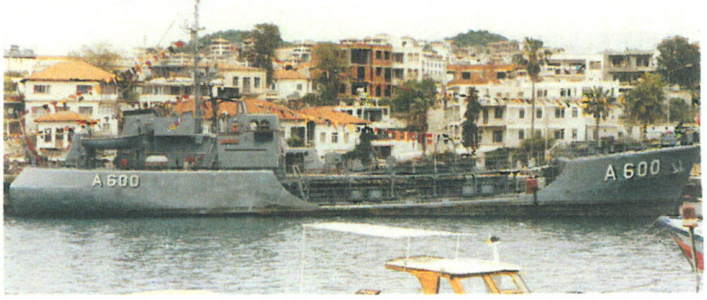
3 WATER TANKERS (AWT)

SÖGÜT (ex-*FW 2*) A 598 (ex-Y 1217) **KAVAK** (ex-*FW 4*) A 600 **ÇINAR** (ex-*FW 1*) A 581

Displacement, tons: 626 full load
Dimensions, feet (metres): 144.4 × 25.6 × 8.2 *(44.1 × 7.8 × 2.5)*
Main machinery: 1 MWM diesel; 230 hp(m) *(169 kW)*; 1 shaft
Speed, knots: 9.5. **Range, miles:** 2,150 at 9 kt
Complement: 12
Cargo capacity: 340 tons

Comment: *Sögüt* acquired from West Germany and commissioned 12 March 1976. Pennant number changed in 1991. *Kavak* transferred from Germany 12 April 1991 and *Çinar* in early 1996.

VERIFIED


KAVAK *4/1997, C D Yaylali* / 0019332

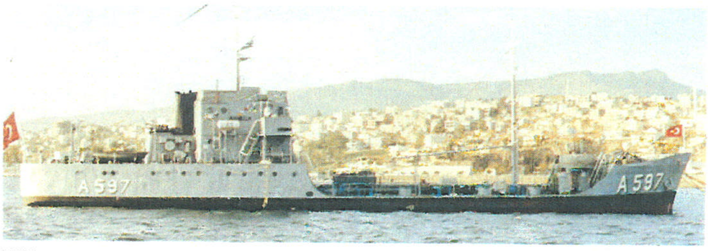
2 WATER TANKERS (AWT)

Name	*No*	*Builders*	*Commissioned*
VAN	A 597 (ex-Y 1208)	Camialti Shipyard	12 Aug 1968
ULUBAT	A 596 (ex-Y 1209)	Camialti Shipyard	3 July 1969

Displacement, tons: 1,250 full load
Dimensions, feet (metres): 174.2 × 29.5 × 9.8 *(53.1 × 9 × 3)*
Main machinery: 1 diesel; 650 hp(m) *(478 kW)*; 1 shaft
Speed, knots: 14
Complement: 39 (3 officers)
Cargo capacity: 700 tons
Guns: 1 Oerlikon 20 mm.
Radars: Racal Decca 707; I-band.

Comment: Pennant numbers changed in 1991.

UPDATED



VAN *6/2003*, Turkish Navy* / 0567542

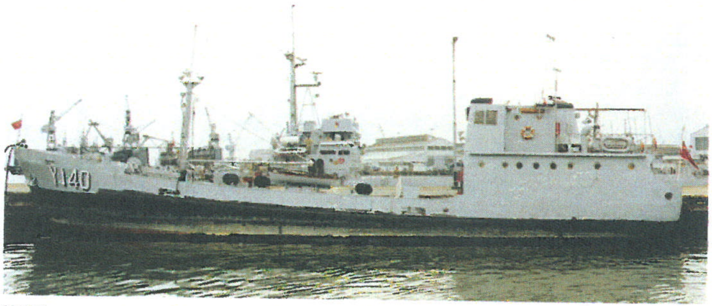
3 HARBOUR TANKERS (YW)

H 500-502 Y 140-142 (ex-Y 1231-1233)

Displacement, tons: 300 full load
Dimensions, feet (metres): 110.2 × 27.9 × 5.9 *(33.6 × 8.5 × 1.8)*
Main machinery: 1 GM diesel; 225 hp(m) *(165 kW)*; 1 shaft
Speed, knots: 11
Complement: 12
Cargo capacity: 150 tons

Comment: Sisters of water tankers of Pinar series. Built at Taşkizak in early 1970s.

VERIFIED



H 500 *6/1994, Turkish Navy* / 0080901

1 HARBOUR TANKER (YO)

GÖLCÜK Y 50

Displacement, tons: 310 full load
Dimensions, feet (metres): 108.8 × 19.2 × 9.2 *(33.2 × 5.8 × 2.8)*
Main machinery: 1 diesel; 550 hp(m) *(404 kW)*; 1 shaft
Speed, knots: 12
Complement: 12

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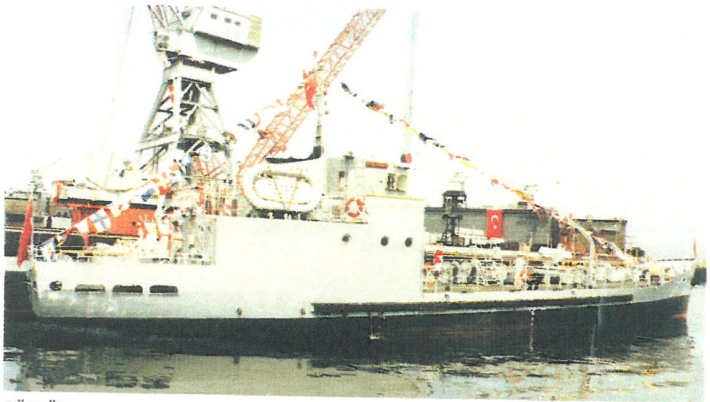


GÖLCÜK *7/1992, Selçuk Emre* / 0080898

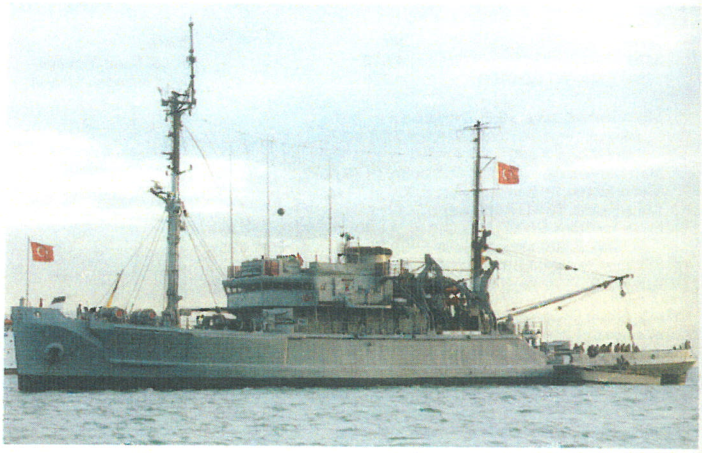
1 DIVER CLASS (SALVAGE SHIP) (ARS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
IŞIN (ex-*Safeguard* ARS 25)	A 589	Basalt Rock, Napa	20 Nov 1943	31 Oct 1944

Displacement, tons: 1,530 standard; 1,970 full load
Dimensions, feet (metres): 213.5 × 41 × 13 *(65.1 × 12.5 × 4)*
Main machinery: Diesel-electric; 4 Cooper-Bessemer GSB-8 diesels; 3,420 hp *(2.55 MW)*; 4 generators; 2 motors; 2 shafts
Speed, knots: 14.8
Complement: 110
Guns: 2 Oerlikon 20 mm.

Comment: Transferred from US 28 September 1979 and purchased outright 6 August 1987.

VERIFIED



IŞIN *10/1997, C D Yaylali* / 0019333

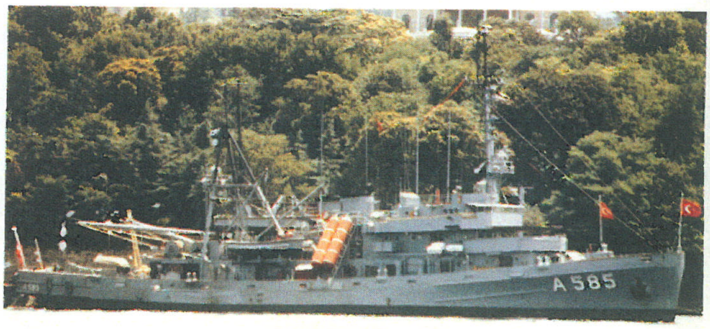
1 CHANTICLEER CLASS (SUBMARINE RESCUE SHIP) (ASR)

Name	*No*	*Builders*	*Launched*	*Commissioned*
AKIN (ex-*Greenlet* ASR 10)	A 585	Moore SB & DD Co	12 July 1942	29 May 1943

Displacement, tons: 1,653 standard; 2,321 full load
Dimensions, feet (metres): 251.5 × 44 × 16 *(76.7 × 13.4 × 4.9)*
Main machinery: Diesel-electric; 4 Alco 539 diesels; 3,532 hp *(2.63 MW)*; 4 generators; 1 motor; 1 shaft
Speed, knots: 15
Complement: 111 (9 officers)
Guns: 1 Bofors 40 mm/60. 4 Oerlikon 20 mm (2 twin).
Radars: Navigation: Racal Decca 1226; I-band.

Comment: Transferred from US, recommissioned 23 December 1970 and purchased 15 February 1973. Carries a Diving Bell.

VERIFIED



AKIN *4/1996, van Ginderen Collection* / 0080902

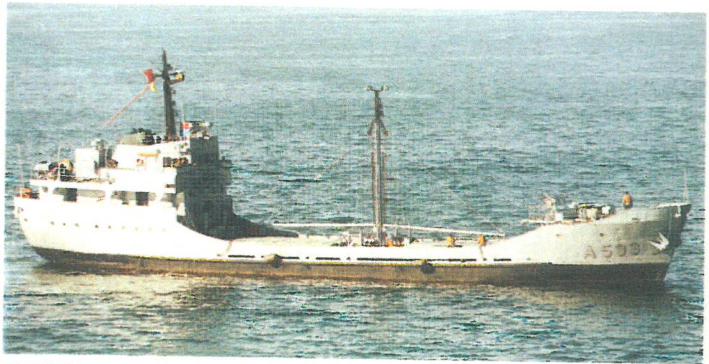
2 TRANSPORTS (AKS/AWT)

Name	*No*	*Builders*	*Commissioned*
KARADENIZ EREĞLISI	A 592 (ex-Y 1157)	Erdem	30 Aug 1982
ECEABAT	A 593 (ex-Y 1165)	Taşkazik	4 Nov 1968

Displacement, tons: 820 full load
Dimensions, feet (metres): 166.3 × 26.2 × 9.2 *(50.7 × 8 × 2.8)*
Main machinery: 1 diesel; 1,440 hp *(1.06 MW)*; 1 shaft
Speed, knots: 10
Complement: 23 (3 officers)
Cargo capacity: 300 tons
Guns: 1 Oerlikon 20 mm.

Comment: Funnel-aft coaster type. Pennant numbers changed in 1991. *Karadeniz Ereğlisi* is a stores ship, *Eceabat* is a water carrier.

VERIFIED



ECEABAT *11/1999, Selim San* / 0084417

2 BARRACK SHIPS (YPB)

NAŞIT ÖNGEREN (ex-US *APL 47*) Y 38 (ex-Y 1204)
BINBAŞI NETIN SÜLÜS (ex-US *APL 53*) Y 39 (ex-Y 1205)

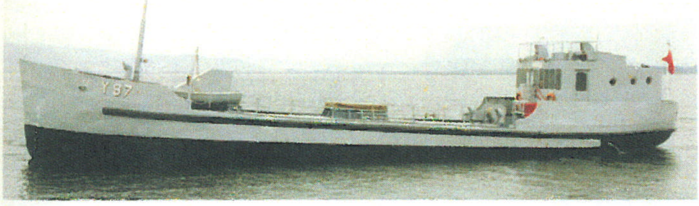
Comment: Ex-US barrack ships transferred on lease: Y 1204 in October 1972 and Y 1205 on 6 December 1974. Y 1204 based at Ereğli and Y 1205 at Gölcük. Purchased outright June 1987. Pennant numbers changed in 1991.

VERIFIED

47 SMALL TRANSPORTS (YFB/YE)

SALOPA 1-14 Y 21-34 (ex-Y 1031-1044)
LAYTER 1-4 and **6-7** Y 101-104 and Y 106-107
MAVNA 1-4 and **7-18** Y 1-4 and Y 7-18
PONTON 1-7 (ex-Y 1061-1067)
ARSLAN Y 75 (ex-Y 1112)
YAKIT Y 139
CEPHANE 2 Y 97 (ex-Y 1195)

Comment: Of varying size and appearance. Pennant numbers changed in 1991. ***VERIFIED***



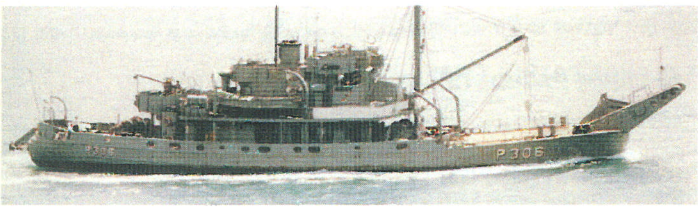
CEPHANE 2 *6/1994, Turkish Navy* / 0080905

1 BOOM DEFENCE VESSEL (ABU)

Name	*No*	*Builders*	*Commissioned*
AG 6 (ex-*AN 93*, ex-Netherlands *Cerberus* A 895)	P 306	Bethlehem Steel Corporation, Staten Island, NY	10 Nov 1952

Displacement, tons: 780 standard; 855 full load
Dimensions, feet (metres): 165 × 33 × 10 *(50.3 × 10.1 × 3)*
Main machinery: Diesel-electric; 2 GM 8-268A diesels; 880 hp *(656 kW)*; 2 generators; 1 motor; 1 shaft
Speed, knots: 12.8. **Range, miles:** 5,200 at 12 kt
Complement: 32 (3 officers)
Guns: 1 USN 3 in *(76 mm)*/50. 4 Oerlikon 20 mm.
Radars: Navigation: Racal Decca 1226; I-band.

Comment: Netlayer. Transferred from US to Netherlands in December 1952. Used first as a boom defence vessel and latterly as salvage and diving tender since 1961 but retained her netlaying capacity. Handed back to US Navy on 17 September 1970 but immediately turned over to the Turkish Navy under grant aid. ***VERIFIED***



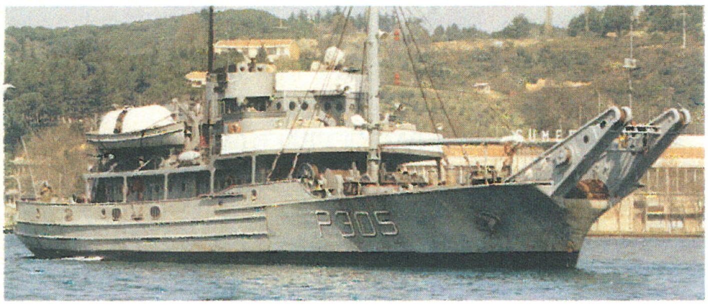
AG 6 *7/1995, Frank Behling* / 0080906

1 BOOM DEFENCE VESSEL (ABU)

Name	*No*	*Builders*	*Commissioned*
AG 5 (ex-*AN 104*)	P 305	Kröger, Rendsburg	25 Feb 1962

Displacement, tons: 960 full load
Dimensions, feet (metres): 173.8 × 35 × 13.5 *(53 × 10.7 × 4.1)*
Main machinery: Diesel-electric; 1 MAN G7V40/60 diesel generator; 1 motor; 1,470 hp(m) *(1.08 MW)*; 1 shaft
Speed, knots: 12. **Range, miles:** 6,500 at 11 kt
Complement: 32 (3 officers)
Guns: 1 Bofors 40 mm/60. 3 Oerlikon 20 mm.
Radars: Navigation: Racal Decca 1226; I-band.

Comment: Netlayer P 305 built in US offshore programme for Turkey. ***VERIFIED***

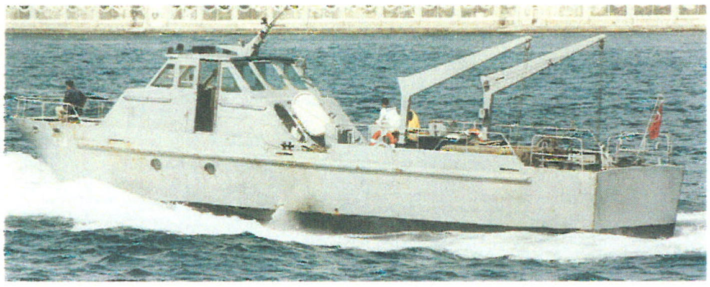


AG 5 *6/1995, Turkish Navy* / 0080907

3 TORPEDO RETRIEVERS (YPT)

TORPITO TENDERI Y 95 (ex-Y 1051) **TAKIP** Y 98 (ex-Y 1052) **Y 44**

Comment: Of different types. ***VERIFIED***



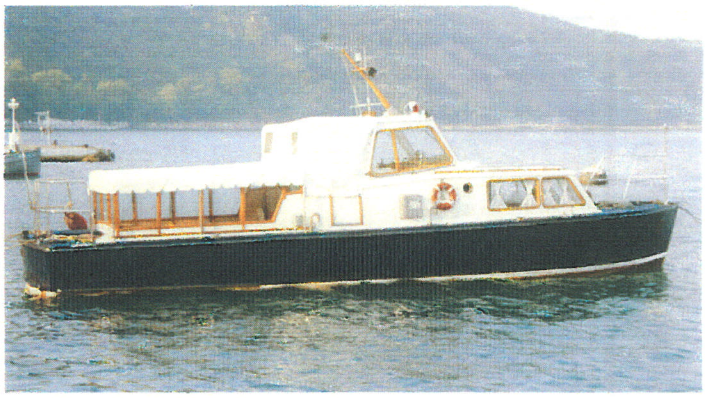
Y 44 *9/1998, C D Yaylali* / 0050297

2 OFFICERS' YACHTS (YAC)

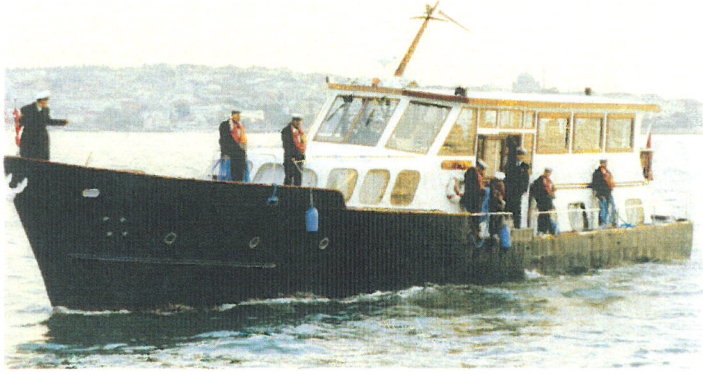
GÜL **NEVCIHAN**

Comment: Pennant numbers not displayed.

UPDATED



GÜL *6/2003*, Turkish Navy* / 0567541



NEVCIHAN *10/2003*, C D Yaylali* / 0567559

14 FLOATING DOCKS/CRANES

Name	*Lift*	*Name*	*Lift*
LEVENT Y 59 (ex-Y 1022)	—	**HAVUZ 5** Y 125 (ex-Y 1085)	400 tons
ALGARNA 3 Y 60 (ex-Y 1021)	—	**HAVUZ 6** Y 126 (ex-Y 1086)	3,000 tons
		HAVUZ 8 Y 128 (ex-Y-1088)	700 tons
HAVUZ 1 Y 121 (ex-Y 1081)	16,000 tons	**HAVUZ 9** Y 129 (ex-Y-1089)	4,500 tons
HAVUZ 2 Y 122 (ex-Y 1082)	12,000 tons	**HAVUZ 10** Y 130 (ex-Y-1090)	3,500 tons
HAVUZ 3 Y 123 (ex-Y 1083) (ex-US AFDL)	2,500 tons	**HAVUZ 11** Y 134	14,500 tons
		HAVUZ 12 Y 135	5,000 tons
HAVUZ 4 Y 124 (ex-Y 1084)	4,500 tons	**HAVUZ 13** Y 136	7,500 tons

Comment: *Algarna* and *Levent* are ex-US floating cranes.

VERIFIED

TUGS

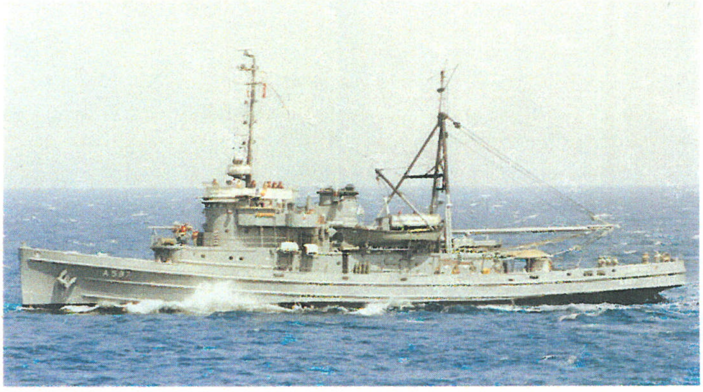
1 CHEROKEE CLASS (ATF)

GAZAL (ex-*Sioux* ATF 75) A 587

Displacement, tons: 1,235 standard; 1,675 full load
Dimensions, feet (metres): 205 × 38.5 × 17 *(62.5 × 11.7 × 5.2)*
Main machinery: Diesel-electric; 4 GM 12-278 diesels; 4,400 hp *(3.28 MW)*; 4 generators; 1 motor; 3,000 hp *(2.24 MW)*; 1 shaft
Speed, knots: 16. **Range, miles:** 15,000 at 8 kt
Complement: 85
Guns: 1 USN 3 in *(76 mm)*/50. 2 Oerlikon 20 mm.
Radars: Navigation: Racal Decca; I-band.

Comment: Originally completed on 6 December 1942. Transferred from US and commissioned 9 March 1973. Purchased 15 August 1973. Can be used for salvage. 3 in gun removed in 1987 but has since been restored.

VERIFIED



GAZAL *6/1995, Turkish Navy* / 0080908

1 TENACE CLASS (ATA)

Name	*No*	*Builders*	*Commissioned*
DEĞIRMENDERE (ex-*Centaure*)	A 576 (ex-A 674)	Chantiers de la Rochelle	14 May 1974

Displacement, tons: 1,454 full load
Dimensions, feet (metres): 167.3 × 37.8 × 18.6 *(51 × 11.5 × 5.7)*
Main machinery: 2 SACM AGO 240 V12 diesels; 4,600 hp(m) *(3.38 MW)*; 1 shaft; Kort nozzle
Speed, knots: 13. **Range, miles:** 9,500 at 13 kt
Complement: 37 (3 officers)
Radars: Navigation: Racal Decca RM 1226 and Racal Decca 060; I-band.

Comment: Transferred from French Navy 16 March 1999. Recommissioned after refit 22 July 1999. Bollard pull 60 tons.

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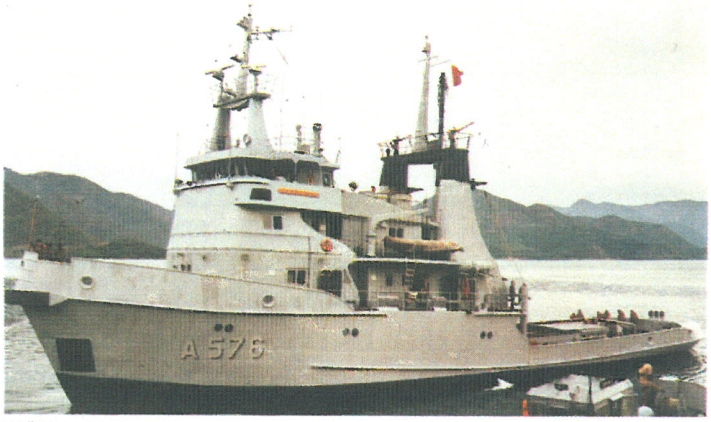

DEĞIRMENDERE *1/2002, M Declerck /* 0533259

18 COASTAL/HARBOUR TUGS (YTB/YTM/YTL)

Name	*No*	*Displacement, tons/ Speed, knots*	*Commissioned*
AKBAŞ	A 586	1660/14	1978
SÖNDÜREN 1-5	(A 1541-1545)	385/12	1999/2000
SÖNDÜREN	Y 51 (ex-Y 1117)	128/12	1954
KUVVET	Y 53 (ex-Y 1122)	390/10	1962
DOĞANARSLAN	Y 52 (ex-Y 1123)	500/12	1985
ATIL	Y 55 (ex-Y 1132)	300/10	1962
ERSEV BAYRAK	Y 64 (ex-Y 1134)	30/9	1946
KUDRET	Y 54 (ex-Y 1229)	128/12	1957
AKSAZ (ex-*Koos*)	A 583 (ex-Y 1651, ex-A 08)	320/11	1962
ÖNDER	Y 160	230/12	1998
ÖNCÜ	Y 161	230/12	1998
ÖZGEN	Y 162	230/12	1999
ÖDEV	Y 163	230/12	1999
ÖZGÜR	Y 164	230/12	2000

Comment: In addition there are 47 Katir pusher berthing tugs. *Koos* was transferred from Germany on 7 October 1996.

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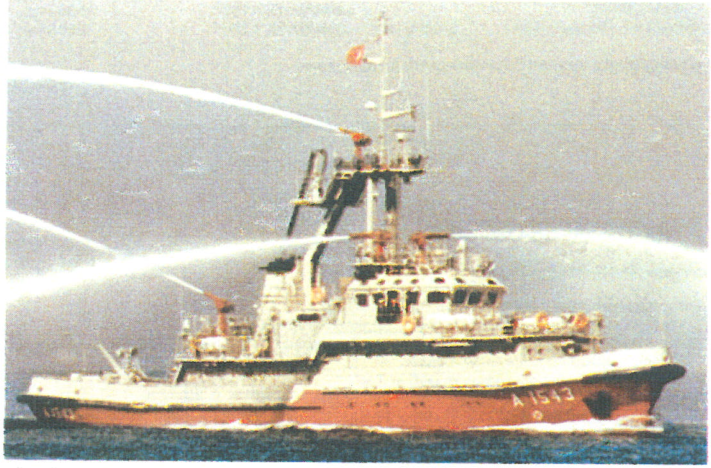
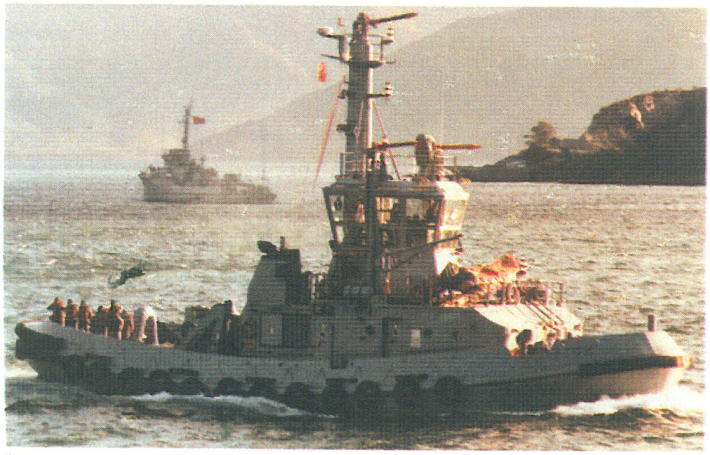


SÖNDÜREN 3 *7/1999, Selçuk Emre /* 0080912



ÖZGEN *1/2002, M Declerck /* 0533260

1 OCEAN TUG (ATR)

DARICA A 578 (ex-Y 1125)

Displacement, tons: 750 full load
Dimensions, feet (metres): 134.2 × 32.2 × 12.8 *(40.9 × 9.8 × 3.9)*
Main machinery: 2 ABC diesels; 4,000 hp *(2.94 MW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 2,500 at 14 kt

Comment: Built at Taşkizak Naval Yard and commissioned 13 June 1991. Equipped for firefighting and as a torpedo tender. Pennant number changed in 1991.

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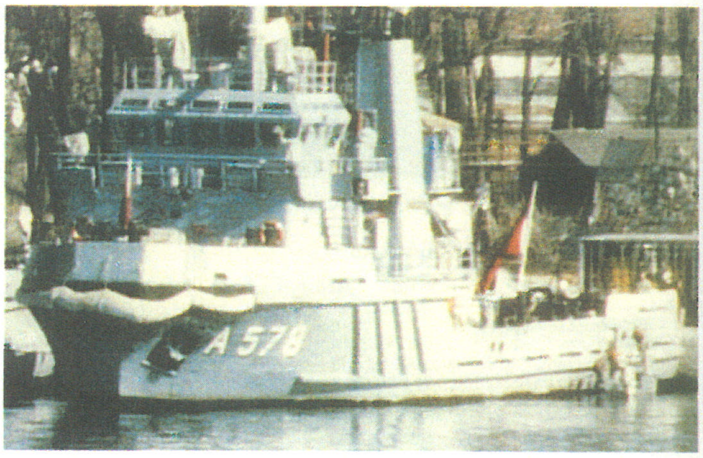

DARICA *11/1994, van Ginderen Collection /* 0080910

COAST GUARD (SAHIL GÜVENLIK)

Notes: (1) Three patrol craft are based in North Cyprus. These are *Raif Denktas,* and *SG 102* and *103*.
(2) Four 'Vigilante' class Boston Whalers were acquired by the Police in September 1999.

12 LARGE PATROL CRAFT (WPB)

SG 80-91

Displacement, tons: 195 full load
Dimensions, feet (metres): 133.5 × 23.3 × 7.2 *(40.7 × 7.1 × 2.2)*
Main machinery: 2 diesels; 5,700 hp(m) *(4.19 MW)*; 2 shafts
Speed, knots: 27
Complement: 25
Guns: 1 Breda 40 mm/70. 2—12.7 mm MGs.
Radars: Surface search: Racal Decca; I-band.

Comment: All built at Taşkizak Shipyard except SG 89 which was built at Istanbul Shipyard. SG 80-82 commissioned in 1996, 83-84 in 1997, 85 in 1998, 86-87 in 2000, 89-90 in 2001, 88 in 2002 and 91 in 2004.

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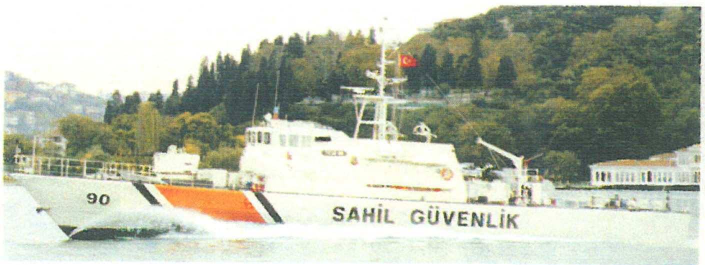

SG 90 *10/2003*, C D Yaylali /* 0567560

10 SAR 33 TYPE (LARGE PATROL CRAFT) (WPB)

SG 61-70

Displacement, tons: 180 full load
Dimensions, feet (metres): 113.5 × 28.3 × 9.7 *(34.6 × 8.6 × 3)*
Main machinery: 3 SACM AGO 195 V16 CSHR diesels; 7,200 hp(m) *(5.29 MW)* sustained; 3 shafts; cp props
Speed, knots: 33. **Range, miles:** 450 at 24 kt; 550 at 18 kt
Complement: 24
Guns: 1 Bofors 40 mm/60. 2—12.7 mm MGs.
Radars: Surface search: Racal Decca; I-band.

Comment: Prototype Serter design ordered from Abeking & Rasmussen, Lemwerder in May 1976. The remainder were built at Taşkizak Naval Yard, Istanbul between 1979 and 1981. Fourteen of this class were to have been transferred to Libya but the order was cancelled. Two delivered to Saudi Arabia. The engines have been governed back and the top speed correspondingly reduced from the original 12,000 hp and 40 kt.

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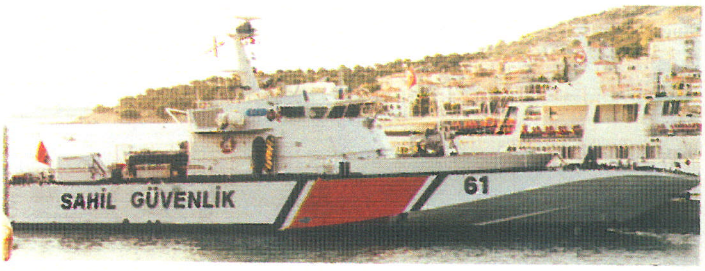

SG 61 *6/2002, C D Yaylali /* 0533261

14 LARGE PATROL CRAFT (WPB)

SG 121-134

Displacement, tons: 180 full load
Dimensions, feet (metres): 132 × 21 × 5.5 *(40.2 × 6.4 × 1.7)*
131.2 × 21.3 × 4.9 *(40 × 6.5 × 1.5) (SG 30-34)*
Main machinery: 2 SACM AGO 195 V16 CSHR diesels; 4,800 hp(m) *(3.53 MW)* sustained
2 cruise diesels; 300 hp(m) *(220 kW)*; 2 shafts
Speed, knots: 22
Complement: 25
Guns: 1 or 2 Bofors 40 mm/60. 2—12.7 mm MGs.
Radars: Surface search: Racal Decca 1226; I-band.

Comment: *SG 121* and *122* built by Gölcük Naval Yard, remainder by Taşkizak Naval Yard. *SG 134* commissioned in 1977, remainder 1968-71. *SG 130-134* have minor modifications-knuckle at bow, radar stirrup on bridge and MG on superstructure sponsons. These are similar craft to the 'Turk' class listed under *Patrol Forces* for the Navy.

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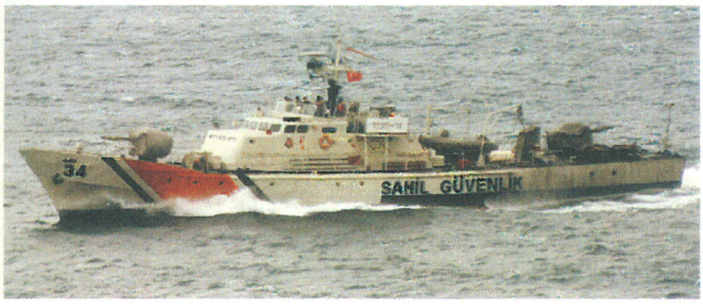

SG 134 (old number) *5/1998* / 0080913

4 SAR 35 TYPE (LARGE PATROL CRAFT) (WPB)

SG 71-74

Displacement, tons: 210 full load
Dimensions, feet (metres): 120 × 28.3 × 6.2 *(36.6 × 8.6 × 1.9)*
Main machinery: 3 SACM AGO 195 V16 CSHR diesels; 7,200 hp(m) *(5.29 MW)* sustained; 3 shafts; cp props
Speed, knots: 33. **Range, miles:** 450 at 24 kt; 550 at 18 kt
Complement: 24
Guns: 1 Bofors 40 mm/60. 2—12.7 mm MGs.
Radars: Surface search: Racal Decca 1226; I-band.

Comment: A slightly enlarged version of the Serter designed SAR 33 Type built by Taşkizak Shipyard between 1985 and 1987. Restricted to less than designed speed.

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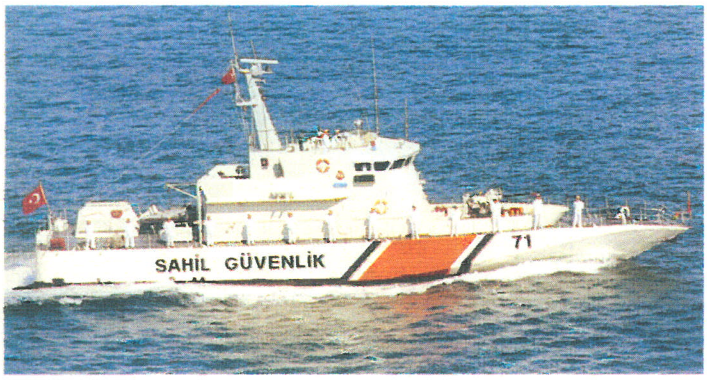

SG 71 *8/2000, C D Yaylali* / 0106645

9 KAAN 29 CLASS (LARGE PATROL CRAFT) (WPBF)

SG 101-109

Displacement, tons: 95 full load
Dimensions, feet (metres): 101.7 × 23.1 × 4.6 *(31.0 × 7.05 × 1.4)*
Main machinery: 2 MTU 16V 400 M90 diesels; 7,398 hp(m) *(5.44 MW)*; 2 MJP 753DD waterjets
Speed, knots: 45. **Range, miles:** 750 at 20 kt
Complement: 13 (2 officers)
Guns: 1 Oerlikon 20 mm.
Radars: Surface search: I-band.

Comment: All built at Yonca Shipyard. Onuk MRTP 29 design. *TCSG 101-103* commissioned 25 July 2001, *TCSG 104-105* on 25 July 2002, *TCSG 106-108* in 2003 and *TCSG 109* in February 2004. A further five craft are expected.

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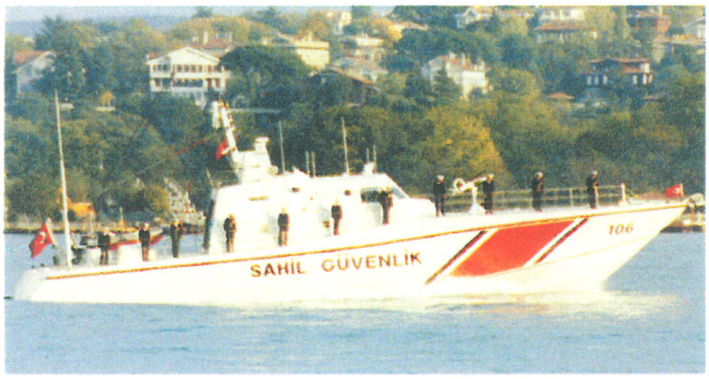


SG 106 *10/2003*, C D Yaylali* / 0567561

1 KAAN 33 CLASS (LARGE PATROL CRAFT) (WPBF)

SG 110

Displacement, tons: 124 full load
Dimensions, feet (metres): 117.1 × 22.6 × 4.7 *(35.7 × 6.9 × 1.4)*
Main machinery: 2 MTU 16V 4000 M90 diesels; 7,396 hp(m) *(5.44 MW)*; 2 MJP 753DD waterjets
Speed, knots: 43. **Range, miles:** 650 at 20 kt
Complement: 18 (2 officers)
Guns: 1 Bofors 40 mm/70. 1 Oerlikon 20 mm.

Comment: Onuk MRTP 33 design built at Yonca shipyard. To be commissioned in July 2004.

NEW ENTRY

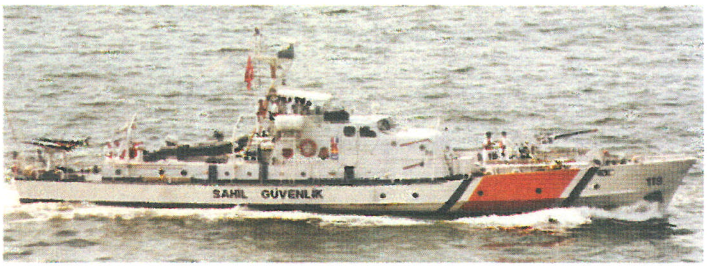
7 KW 15 CLASS (LARGE PATROL CRAFT) (WPB)

SG 113-116, 118-120

Displacement, tons: 70 full load
Dimensions, feet (metres): 94.8 × 15.4 × 4.6 *(28.9 × 4.7 × 1.4)*
Main machinery: 2 MTU diesels; 2,700 hp(m) *(1.98 MW)*; 2 shafts
Speed, knots: 20. **Range, miles:** 550 at 16 kt
Complement: 16
Guns: 1 Bofors 40 mm/60. 2 Oerlikon 20 mm.
Radars: Surface search: Racal Decca; I-band.

Comment: Built by Schweers, Bardenfleth. Commissioned 1961-62.

UPDATED



SG 119 *9/2002, Selim San* / 0533264

18 KAAN 15 CLASS (FAST INTERVENTION CRAFT) (WPBF)

SG 1-18

Displacement, tons: 19 full load
Dimensions, feet (metres): 54.2 × 13.2 × 3.15 *(15.4 × 4.04 × 0.96)*
Main machinery: 2 MTU 12V 183 TE93 diesels; 2,300 hp(m) *(1.69 MW)*; 2 Arneson ASD 12 B1L surface drives
Speed, knots: 54. **Range, miles:** 350 at 35 kt
Complement: 4 plus 8 mission crew
Guns: 2—12.7 mm MGs.
Radars: Surface search: Raytheon; I-band.

Comment: Contract for first six with Yonca Technical Investment signed in May 1997, second order for six more in February 1999, and third for 12 more in August 2000. All built at Tuzla-Istanbul shipyard. Three delivered in 1998, seven in 1999, two in April 2000, four in July 2001 and two in July 2002. Onuk MRTP 15 design. Fibreglass hulls.

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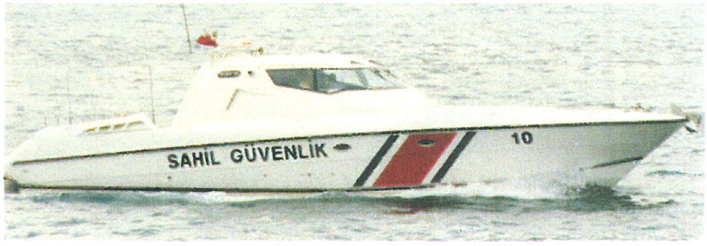

SG 10 *10/2003*, C D Yaylali* / 0567562

12 COASTAL PATROL CRAFT (WPB)

SG 50-59 **SG 102-103**

Displacement, tons: 29 full load
Dimensions, feet (metres): 47.9 × 13.7 × 3.6 *(14.6 × 4.2 × 1.1)*
Main machinery: 2 diesels; 700 hp(m) *(514 kW)*; 2 shafts
Speed, knots: 15
Complement: 7
Guns: 1—12.7 mm MG or 1 Oerlikon 20 mm *(SG 102-103)*.
Radars: Surface search: Raytheon; I-band.

Comment: *SG 102* and *103* were built for North Cyprus and have been based there since August 1990 and July 1991 respectively. Both these craft were given a heavier gun in 1992. Second batch of three completed by Taşkizak in October 1992, three more in June 1993, four more in December 1993.

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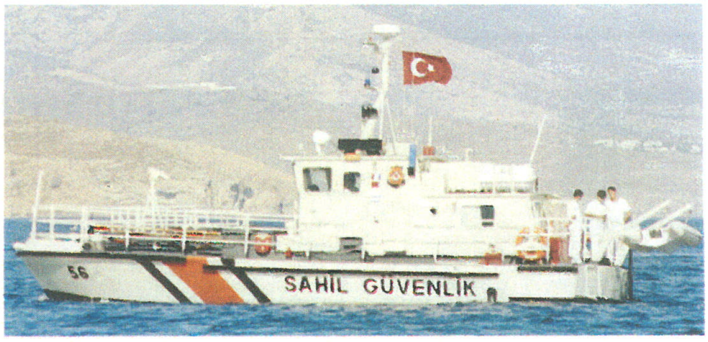

SG 56 *10/1998, Selim San* / 0050304

2 COASTAL PATROL CRAFT (WPB)

SG 42-43

Displacement, tons: 45 full load
Dimensions, feet (metres): 55.1 × 13.9 × 3.6 *(16.8 × 4.2 × 1.1)*
Main machinery: 2 Gray Marine 64HN9 diesels; 450 hp *(335 kW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 200 at 12 kt
Complement: 7
Guns: 1—12.7 mm MG.

Comment: Former US Mk 5 craft built in Second World War. *SG 45* and *46* transferred to north Cyprus in August 1993.

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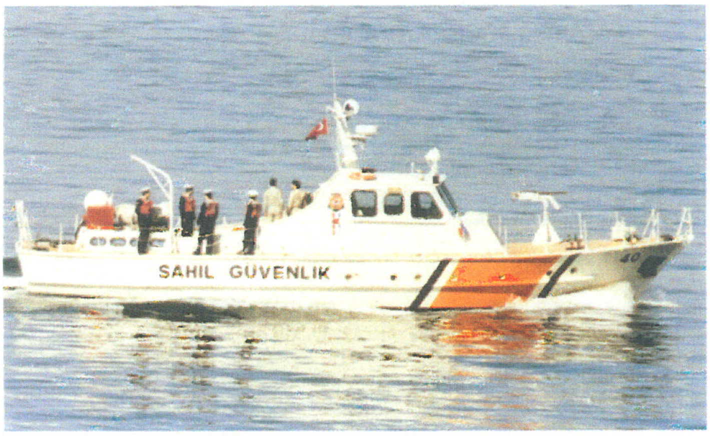

COASTAL PATROL CRAFT *3/2001, Selim San* / 0114805

1 INSHORE PATROL CRAFT (WPBI)

RAIF DENKTAS 74

Displacement, tons: 10 full load
Dimensions, feet (metres): 38 × 11.5 × 2.4 *(11.6 × 3.5 × 0.7)*
Main machinery: 2 Volvo Aquamatic AQ200F petrol engines; 400 hp(m) *(294 kW)*; 2 shafts
Speed, knots: 28. **Range, miles:** 250 at 25 kt
Complement: 6
Guns: 1—12.7 mm MG.
Radars: Surface search: Raytheon; I-band.

Comment: Built by Protekson, Istanbul. Transferred to North Cyprus 23 September 1988. Can be equipped with a rocket launcher.

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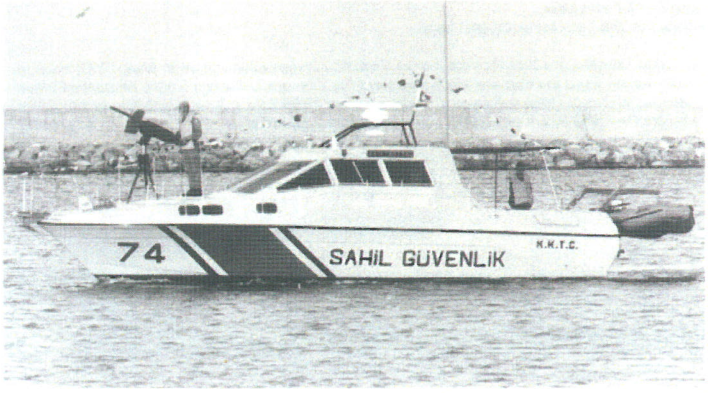

RAIF DENKTAS (North Cyprus) *9/1988, Selçuk Emre*

1 HARBOUR PATROL CRAFT (WPBI)

SG 41

Displacement, tons: 35 *(SG 1)*; 15 *(SG 2)* full load
Dimensions, feet (metres): 55.8 × 16.4 × 3.3 *(17 × 5 × 1) (SG 1)*
47.5 × 14.4 × 2.3 *(14.5 × 4.4 × 0.7) (SG 2)*
Main machinery: 2 diesels; 1,050 hp(m) *(771 kW) (SG 1)*
2 diesels; 700 hp(m) *(515 kW) (SG 2)*
Speed, knots: 20 *(SG 1)*; 18 *(SG 2)*
Complement: 7
Radars: Surface search: I-band.

Comment: High-speed patrol boat for anti-smuggling duties. Probably confiscated drug smuggling craft.

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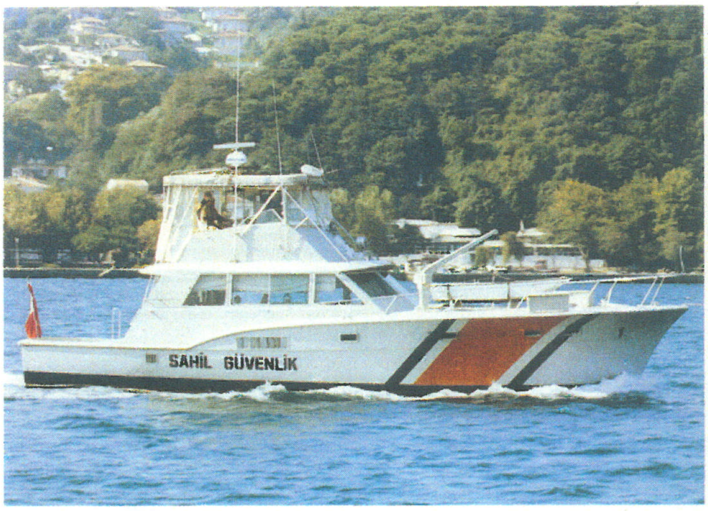
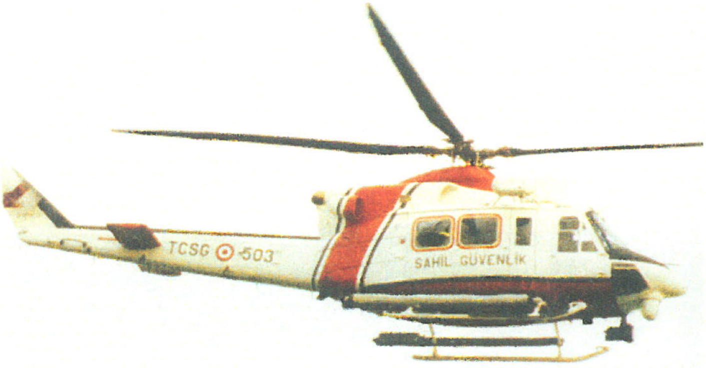


HARBOUR PATROL CRAFT *6/1995, Turkish Coast Guard* / 0080916

LAND-BASED MARITIME AIRCRAFT

Numbers/Type: 9 Agusta AB 412 EP.
Operational speed: 122 kt *(226 km/h)*.
Service ceiling: 17,000 ft *(5,180 m)*.
Range: 374 n miles *(656 km)*.
Role/Weapon systems: Nine aircraft ordered 15 April 1999. Operated by Coast Guard/Frontier Force for patrol SAR. Sensors: Radar and FLIR. Weapons: Unarmed.

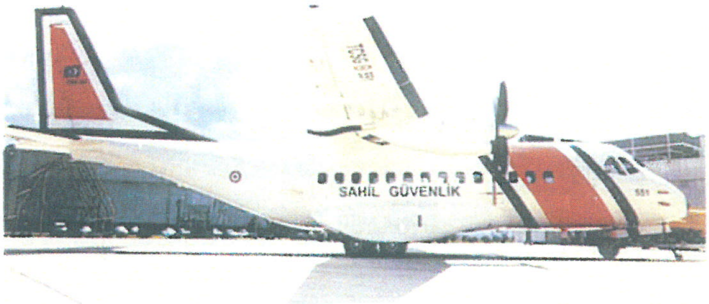
NEW ENTRY



AB 412 *10/2003*, C D Yaylali* / 0567563

Numbers/Type: 3 CASA CN-235.
Operational speed: 240 kt *(445 km/h)*.
Service ceiling: 26,600 ft *(8,110 m)*.
Range: 669 n miles *(1,240 km)*.
Role/Weapon systems: Three delivered in July 2002. Long range maritime patrol for surveillance.

NEW ENTRY



CN-235 *2/2003*, CASA* / 0531695

Turkmenistan

Country Overview

Formerly part of the USSR, the Republic of Turkmenistan declared its independence in 1991. Situated in Central Asia, it has an area of 188,460 square miles and is bordered to the north by Kazakhstan, to the east by Uzbekistan and Afghanistan and to the south by Iran. It has a 562 n mile coastline with the Caspian Sea. Türkmenbashi, the principal port, is linked by rail to Ashgabat, the capital and largest city. Maritime claims in the Caspian Sea are yet to be resolved. The Navy acts under the operational control of the Border Guard but is the weakest component of the Turkmen armed forces.

Headquarters Appointments

Minister of Defence:
Mammet Geldiyev

Personnel

2004: 125

Base

Türkmenbashi (formerly Krasnovodsk)

PATROL FORCES

1 POINT CLASS (WPB)

Name	*No*	*Builders*	*Commissioned*
MERJEN (ex-*Point Jackson*)	PB-129 (ex-82378)	USCG Yard Curtis Bay	3 Aug 1970

Displacement, tons: 66; 69 full load
Dimensions, feet (metres): 83 × 17.2 × 5.8 *(25.3 × 5.2 × 1.8)*
Main machinery: 2 Caterpillar 3412 diesels; 1,600 hp *(1.19 MW)*; 2 shafts
Speed, knots: 23.5. **Range, miles:** 1,200 at 8 kt
Complement: 10 (1 officer)
Guns: 2—12.7 mm MGs.
Radars: Surface search: Hughes/Furuno SPS-73; I-band.

Comment: Steel hulled craft with aluminium superstructure. Transferred from United States on 30 May 2000.

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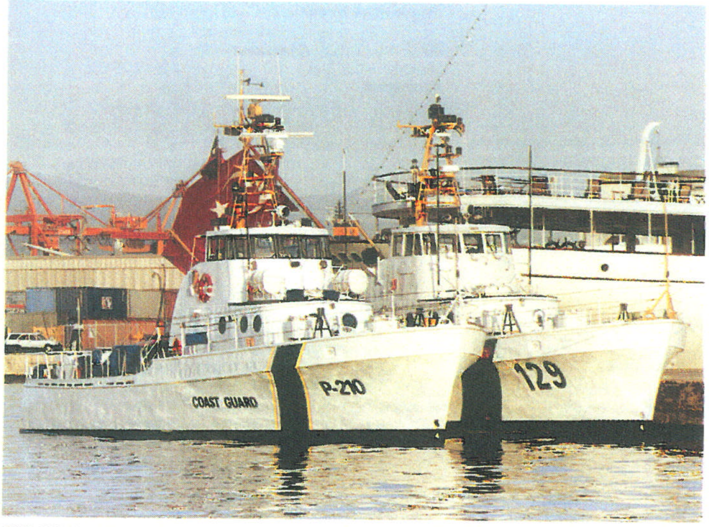

MERJEN (inboard ship) *11/2000, Selim San* / 0104495

10 KALKAN (PROJECT 50030) M CLASS (INSHORE PATROL CRAFT) (PBI)

Displacement, tons: 8.5 full load
Dimensions, feet (metres): 38.1 × 10.8 × 2.0 *(11.6 × 3.3 × 0.6)*
Main machinery: 1 Type 475K diesel; 496 hp *(370 kW)*; 1 waterjet
Speed, knots: 34
Complement: 2

Comment: Seven craft delivered during 2002 with a further three to follow. Built by Morye Feodosiya (Ukraine) and constructed with aluminium hulls and GRP superstructure. Can be armed with 7.62 mm or 12.7 mm MGs.

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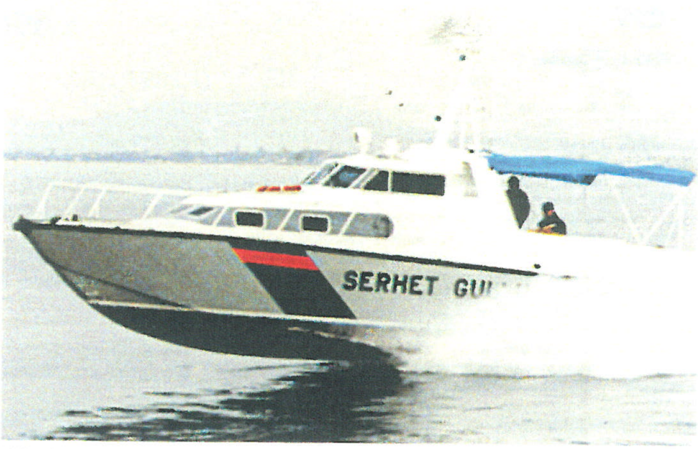

KALKAN *6/2003*, Morye* / 0573698

1 + 9 ZHUK (GRIF) CLASS (PROJECT 1400M) (PB)

Displacement, tons: 39 full load
Dimensions, feet (metres): 78.7 × 16.4 × 3.9 *(24 × 5 × 1.2)*
Main machinery: 2 Type M 401B diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,100 at 15 kt
Complement: 13 (1 officer)
Guns: 2—14.5 mm (twin, fwd) MGs. 1—12.7 mm (aft) MG.
Radars: Surface search: Spin Trough; I-band.

Comment: The first of ten craft is expected to be transferred from Ukraine in 2004.

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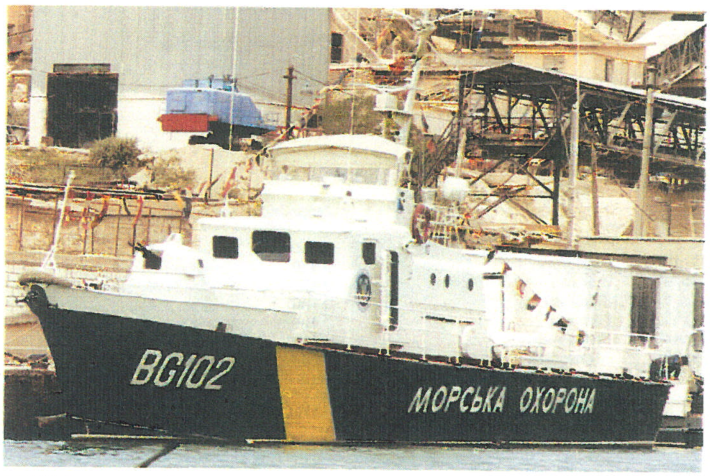

ZHUK (Ukraine colours) *8/2000, Hartmut Ehlers* / 0106674

Tuvalu

Country Overview

Tuvalu, formerly the Ellice Islands, is a south Pacific island group which gained independence in 1978; the other part of the former British colony, the Gilbert Islands, became independent as Kiribati the following year. Situated some 1,600 n miles east of Papua New Guinea, the country comprises nine atolls of which Funafuti is the location of the capital, Fongafale, and home to more than 30 per cent of the population. An archipelagic state, territorial seas (12 n miles) are claimed. An Exclusive Economic Zone (EEZ) (200 n miles) is also claimed but limits have not been fully defined by boundary agreements.

Bases

Funafuti

PATROL FORCES

1 PACIFIC CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
TE MATAILI	801	Transfield Shipbuilding, WA	8 Oct 1994

Displacement, tons: 165 full load
Dimensions, feet (metres): 103.3 × 26.6 × 6.9 *(31.5 × 8.1 × 2.1)*
Main machinery: 2 Caterpillar 3516TA diesels; 4,400 hp *(3.28 MW)* sustained; 2 shafts
Speed, knots: 18. **Range, miles:** 2,500 at 12 kt
Complement: 18 (3 officers)
Guns: Can carry 1—12.7 mm MG but is unarmed.
Radars: Navigation: Furuno 1011; I-band.

Comment: This is the 18th of the class to be built by the Australian Government for Exclusive Economic Zone (EEZ) patrols in the Pacific islands. The programme originally terminated at 15 but was re-opened on 19 February 1993 to include construction of five more craft for Fiji, Kiribati and Tuvalu. Training and support assistance is given by the Australian Navy. Half-life refit completed at Gladstone in 2001. Following the decision by the Australian government to extend the Pacific Patrol Boat programme, *Te Mataili* will require a life-extension refit in 2009 in order to achieve a 30-year ship life.

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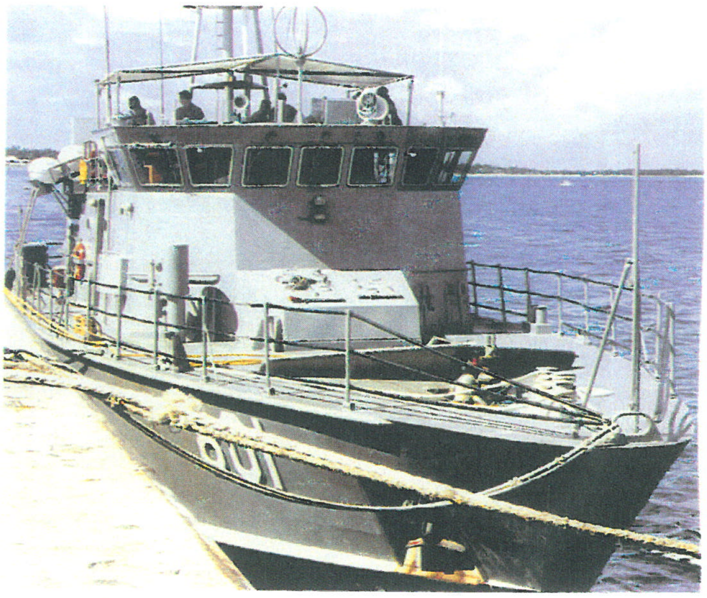

TE MATAILI
2000, RAN / 0106647

Ukraine

Country Overview

Formerly part of the USSR, Ukraine declared its independence in 1991. Situated in eastern Europe, it has an area of 233,090 square miles and is bordered to the north by Belarus, to the east by Russia, to the south-west by Romania and Moldova and to the west by Hungary, Slovakia and Poland. It has a 1,501 n mile coastline with the Black Sea and the Sea of Azov. Kiev is the capital and largest city while Sevastopol, Odessa, Kerch, and Mariupol are the principal ports. Territorial Seas (12 n miles) have been claimed. An EEZ (200 n miles) has been claimed but the limits have not been defined.

Division of the former Soviet Black Sea Fleet between Russia and Ukraine had been achieved by 1997.

Headquarters Appointments

Commander of the Navy:
Vice Admiral Igor Knyaz
First Deputy Commander of the Navy and Chief of Staff:
Rear Admiral Mykola Kostrov

Senior Officers

Commander Southern Naval District:
Rear Admiral Borys Rekuts

Senior Officers *— continued*

Commander Western Naval District:
Rear Admiral D Ukrainetz
Commander Border Guard, Navy:
Rear Admiral I V Alferyev
Commander Naval Aviation:
Major General Mykola Volovin

Bases

Sevastopol (HQ), Donuzlav (Southern Region), Odessa (Western Region), Mikolaiv, Feodosiya, Izmail, Balaklava, Kerch

Personnel

2004: 12,500 navy

Border Guard

The Maritime Border Guard is an independent subdivision of the State Committee for Border Guards, and is not part of the Navy. It has four cutter brigades to patrol the 827 mile coastline and two river brigades, which include a gunship squadron, a minesweeping squadron, an auxiliary ship group and a training division. Pennant numbers changed in July 1999.

DELETIONS

Notes: Some of these ships are laid up and may return to service, but this is unlikely.

Cruisers

2001 *Ukraina* (not completed)

Frigates

2001 *Mikolaiv*

Amphibious forces

2001 *Kramatorsk*

Auxiliaries

2001 *Kerch, Novy Bug*

PENNANT LIST

Submarines

U 01	Zaporizya

Frigates

U 130	Hetman Sagaidachny
U 200	Lutsk
U 202	Ternopil (bldg)
U 205	Chernigiv
U 206	Vinnitsa

Patrol Forces

U 120	Skadovsk
U 153	Priluki
U 154	Kahovka
U 155	Nikopol
U 156	Kremenchuk
U 208	Khmelnitsky

Mine Warfare Forces

U 310	Zhovti Vody
U 311	Cherkasy
U 330	Melitopol
U 331	Mariupol
U 360	Genichesk

Amphibious Forces

U 400	Rivne
U 410	Kirovograd
U 402	Konstantin Olshansky
U 420	Donetsk
U 424	Artemivsk
U 862	Korosten
U 904	Bilyaïvka

Auxiliaries

U 240	Feodisiya
U 510	Slavutich
U 540	Chigirin
U 541	Smila
U 542	Darnicha
U 635	Skvyra
U 700	Netisin
U 705	Kremenets
U 706	Izyaslav
U 707	Brodi
U 721	V Volnidsky
U 722	Borshev
U 728	Evpatoriya
U 731	Mirgood
U 733	Tokmak
U 753	Kriviy Rig
U 756	Sudak
U 757	Makivka
U 759	Bahmach
U 760	Fastiv
U 782	Sokal
U 803	Krasnodon
U 811	Balta
U 830	Korets
U 831	Kovel
U 852	Shostka
U 860	Kamyankha
U 890	Malin
U 891	Monastirishze
U 947	Krasnoperekovsk
U 953	Dubno

Survey Ships

U 511	Simferopol
U 512	Pereyaslav
U 601	Alchevsk
U 754	Dzhankoi

SUBMARINES

1 FOXTROT CLASS (PROJECT 641) (SS)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ZAPORIZYA (ex-B 435)	U 01	Sudomekh, Leningrad	24 Mar 1970	29 May 1970	6 Nov 1970

Displacement, tons: 1,952 surfaced; 2,475 dived
Dimensions, feet (metres): 299.5 × 24.6 × 19.7 *(91.3 × 7.5 × 6)*
Main machinery: Diesel-electric; 3 Type 37-D diesels; 6,000 hp(m) *(4.4 MW)*; 3 motors (1 × 2,700 and 2 × 1,350); 5,400 hp(m) *(3.97 MW)*; 3 shafts; 1 auxiliary motor; 140 hp(m) *(103 kW)*
Speed, knots: 16 surfaced; 15 dived; 9 snorting
Range, miles: 20,000 at 8 kt surfaced; 380 at 2 kt dived

Complement: 75

Torpedoes: 10—21 in *(533 mm)* (6 bow, 4 stern) tubes. Combination of 22—53 cm torpedoes.
Mines: 44 in lieu of torpedoes.
Countermeasures: ESM: Stop Light; radar warning.
Radars: Surface search: Snoop Tray; I-band.
Sonars: Pike Jaw; hull-mounted; passive/active search and attack; high frequency.

Programmes: Transferred from Russia in August 1997 with three others of the class.
Operational: Based at Balaklava and, following a three year refit which completed in 2000, further work is required to restore hydraulic systems and replace batteries. The boat is expected to return to operational service in 2004.

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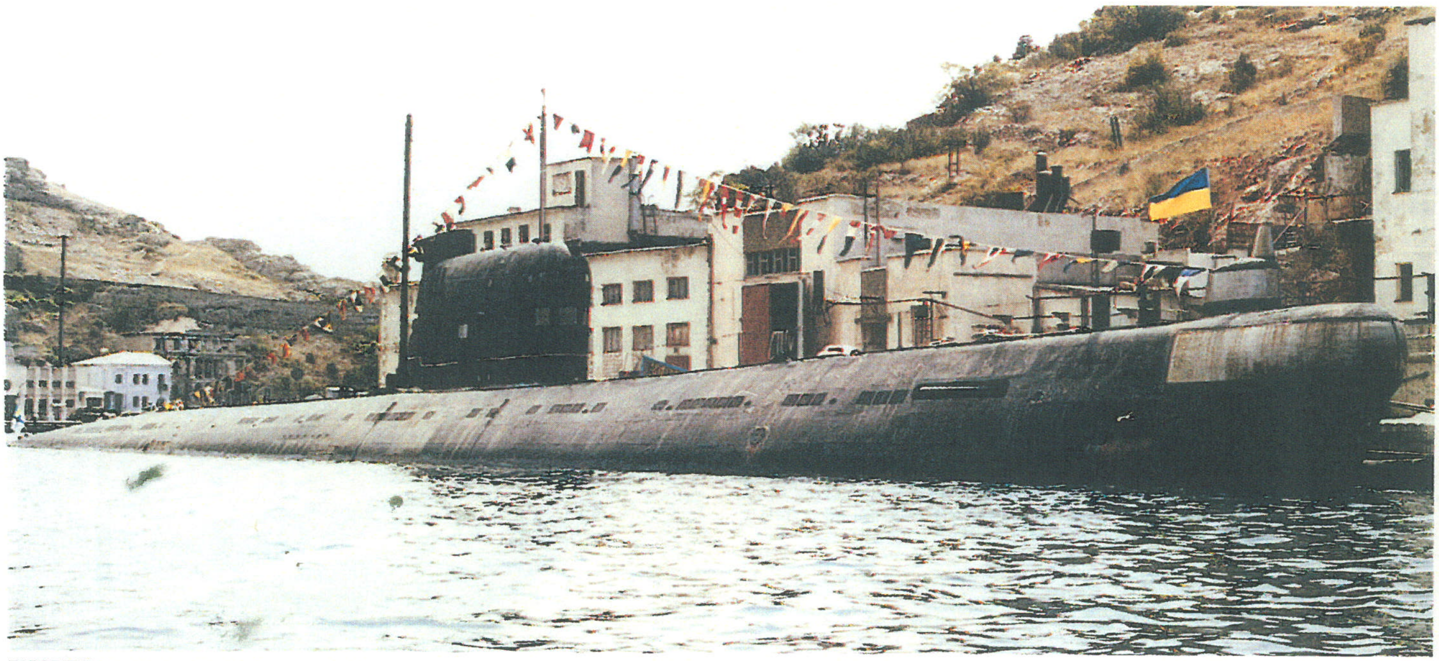

ZAPORIZYA

8/2000, Hartmut Ehlers / 0106649

FRIGATES

1 KRIVAK III (NEREY) CLASS (PROJECT 1135.1) (FFHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
HETMAN SAGAIDACHNY (ex-*Kirov*)	U 130 (ex-201)	Kamysh-Burun, Kerch	5 Oct 1990	29 Mar 1992	5 July 1993

Displacement, tons: 3,100 standard; 3,650 full load
Dimensions, feet (metres): 405.2 × 46.9 × 16.4 *(123.5 × 14.3 × 5)*
Main machinery: COGAG; 2 gas turbines; 55,500 hp(m) *(40.8 MW)*; 2 gas turbines; 13,600 hp(m) *(10 MW)*; 2 shafts
Speed, knots: 32
Range, miles: 4,600 at 20 kt; 1,600 at 30 kt
Complement: 180 (18 officers)

Missiles: SAM: 1 SA-N-4 Gecko twin launcher ①; semi-active radar homing to 15 km *(8.1 n miles)* at 2.5 Mach; warhead 50 kg; altitude 9.1-3,048 m *(30-10,000 ft)*; 20 missiles. The launcher retracts into the mounting for stowage and protection, rising to fire and retracting to reload. The two mountings are forward of the bridge and abaft the funnel.
Guns: 1—3.9 in *(100 mm)*/59 ②; 60 rds/min to 15 km *(8.1 n miles)*; weight of shell 16 kg.
2—30 mm/65 ③; 6 barrels per mounting; 3,000 rds/min combined to 2 km.
Torpedoes: 8—21 in *(533 mm)* (2 quad) tubes ④. Combination of Russian 53 cm torpedoes.
A/S mortars: 2 RBU 6000 12-tubed trainable ⑤; range 6,000 m; warhead 31 kg.
Countermeasures: Decoys: 4 PK 16 chaff launchers. Towed torpedo decoy.
ESM: 2 Bell Shroud; intercept.
ECM: 2 Bell Squat; jammers.
Radars: Air search: Top Plate ⑥; 3D; D/E-band.
Surface search: Spin Trough ⑦; I-band. Peel Cone ⑧; E-band.
Fire control: Pop Group ⑨; F/H/I-band (for SA-N-4). Kite Screech ⑩; H/I/K-band. Bass Tilt (Krivak III) ⑪; H/I-band.
Navigation: Kivach; I-band.
IFF: Salt Pot (Krivak III).
Sonars: Bull Nose (MGK 335MS); hull-mounted; active search and attack; medium frequency.

Helicopters: 1 Ka-27 Helix ⑫.

Programmes: This is the last of the 'Krivak IIIs' originally designed for the USSR Border Guard. The seven others are based in the Russian Pacific Fleet. A ninth of class was not completed.
Operational: *Sagaidachny* has so far not been sighted with a helicopter embarked. Deployed to the Mediterranean in 1994 and late 1995, to the Indian Ocean in early 1995 and to the US in late 1996. 'Krivak II' *Sevastopol* (U 132) is probably being used for spares while 'Krivak I' *Mikolaiv* and *Dnipropetrovsk* are to be scrapped.

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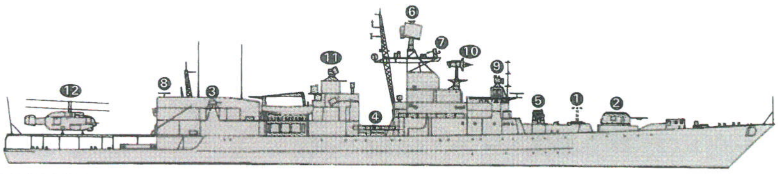

HETMAN SAGAIDACHNY *(Scale 1 : 1,200), Ian Sturton*

HETMAN SAGAIDACHNY *6/2003*, Ships of the World* / 0572651

HETMAN SAGAIDACHNY *7/2000* / 0106650

3 + 1 GRISHA CLASS (PROJECT 1124EM/P) (FFLM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
LUTSK	U 200	Leninskaya Kuznitsa, Kiev	–	12 May 1993	12 Feb 1994
TERNOPIL	U 202	Leninskaya Kuznitsa, Kiev	–	20 Mar 2002	2004
CHERNIGIV (ex-*Izmail*)	U 205	Zrelenodolsk	12 Sep 1978	22 June1980	28 Dec 1980
VINNITSA (ex-*Dnepr*)	U 206	Zrelenodolsk	23 Dec 1975	12 Sep 1976	31 Dec 1976

Displacement, tons: 950 standard; 1,150 full load
Dimensions, feet (metres): 233.6 × 32.2 × 12.1 *(71.2 × 9.8 × 3.7)*
Main machinery: CODAG; 1 gas turbine; 15,000 hp(m) *(11 MW)*; 2 diesels; 16,000 hp(m) *(11.8 MW)*; 3 shafts
Speed, knots: 30. **Range, miles:** 2,500 at 14 kt; 1,750 at 20 kt diesels; 950 at 27 kt
Complement: 70 (5 officers)

Missiles: SAM: SA-N-4 Gecko twin launcher ① *(Lutsk)*; semi-active radar homing to 15 km *(8 n miles)* at 2.5 Mach; warhead 50 kg; altitude 9.1-3,048 m *(30-10,000 ft)*; 20 missiles.
Guns: 1—3 in *(76 mm)*/60 ②; *(Lutsk)*; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
4—57 mm/80 (twin); 120 rds/min to 6 km *(3.3 n miles)*; weight of shell 2.8 kg.
1—30 mm/65 ③; *(Lutsk)*; 6 barrels; 3,000 rds/min combined to 2 km.
Torpedoes: 4—21 in *(533 mm)* (2 twin) tubes ④. SAET-60; passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 400 kg.
A/S mortars: 1 or 2 RBU 6000 12-tubed trainable ⑤; range 6,000 m; warhead 31 kg.
Depth charges: 2 racks (12).
Mines: Capacity for 18 in lieu of depth charges.
Countermeasures: ESM: 2 Watch Dog. 2 PK 16 chaff launchers.
Radars: Air/surface search: Half Plate B ⑥; *(Lutsk)*; E/F-band.
Strut Curve (remainder); F-band.
Navigation: Don 2; I-band.
Fire control: Pop Group ⑦; *(Lutsk)*; F/H/I-band (for SA-N-4). Bass Tilt ⑧; *(Lutsk)*; H/I-band (for 76 mm and 30 mm).
Muff Cobb (remainder); G/H-band.
IFF: High Pole A or B. Square Head. Salt Pot.
Sonars: Bull Nose (MGK 335MS); hull-mounted; active search and attack; high/medium frequency.
Elk Tail VDS ⑨; active search; high frequency.

Programmes: *Lutsk* is a 'Grisha V' (Type 1124EM) launched 12 May 1993 and completed 27 November 1993. *Ternopil* is under construction and is the first new ship to join the fleet since 1992. It is expected to commission in 2004. *Chernigiv* and *Vinnitsa* are both 'Grisha II' (Type 1124P) ex-Russian Border Guard ships transferred in 1996. Two 'Grisha I' were also transferred but have been deleted.
Operational: Both active.

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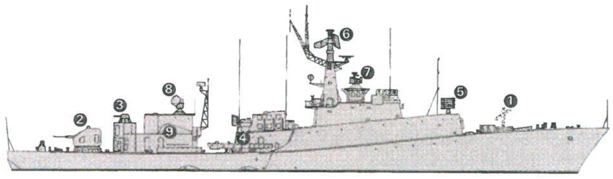

LUTSK *(Scale 1 : 900), Ian Sturton*

LUTSK *8/2003*, Guy Toremans* / 0572654

VINNITSA
7/2000, Hartmut Ehlers / 0106652

LAND-BASED MARITIME AIRCRAFT

Notes: There are two principal formations. OSAE (Otdelnaya Smeshannaya Aviotsionnaya Eskadrilya) comprises both fixed- and rotary-wing aircraft and is based at Sevastopol. OPVLP (Otdelnyi Protivolodochnyi VV Polk) comprises fixed-wing aircraft with a secondary anti-shipping role and is based at Ochakov. The majority of aircraft is thought to be unserviceable but the current operational inventory is assessed to include 16 Tu-22 Backfire, 18 Su-24 Fencer, 5 Mi-14 Haze, 3 Be-12 Mail, 18 Ka-25 Hormone and 16 Ka 27/29 Helix.

PATROL FORCES

1 PAUK I (MOLNYA) (PROJECT 1241P) CLASS (PCM)

KHMELNITSKY (ex-*MPK 116*) U 208

Displacement, tons: 440 full load
Dimensions, feet (metres): 189 × 33.5 × 10.8 *(57.6 × 10.2 × 3.3)*
Main machinery: 2 Type M 521 diesels; 16,184 hp(m) *(11.9 MW)* sustained; 2 shafts
Speed, knots: 32. **Range, miles:** 2,400 at 14 kt
Complement: 32

Missiles: SAM: SA-N-5 Grail quad launcher; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg; 8 missiles.
Guns: 1—3 in *(76 mm)*/60; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7kg.
1—30 mm/65 AK 630; 6 barrels; 3,000 rds/min combined to 2 km.
Torpedoes: 4—16 in *(406 mm)*.
A/S mortars: 2 RBU 1200 5-tubed fixed; range 1,200 m; warhead 34 kg.
Depth charges: 2 racks (12).
Countermeasures: Decoys: 2 PK 16 or 4 PK 10 chaff launchers.
ESM: 3 Brick Plug and 2 Half Hat; radar warning.
Weapons control: Hood Wink optronic director.
Radars: Air/surface search: Peel Cone; E/F-band.
Surface search: Kivach or Pechora; I-band.
Fire control: Bass Tilt; H/I-band.
Sonars: Foal Tail; VDS (mounted on transom); active attack; high frequency.

Programmes: Built at Yaroslavl in 1985. Transferred from Black Sea Fleet Border Guard in 1996. Others of this class are in the Ukraine Border Guard.
Structure: ASW version of the Russian 'Tarantul' class.
Operational: A second of class (*Uzhgorod* U 207) is laid up.

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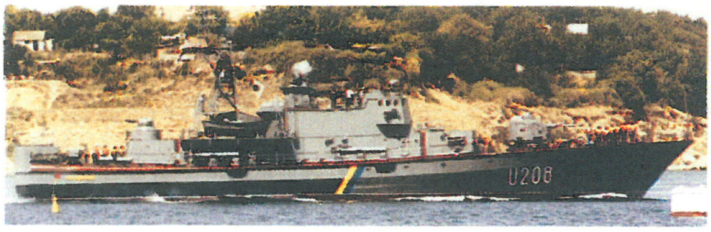

KHMELNITSKY *7/2000, Hartmut Ehlers* / 0106653

2 TARANTUL II (MOLNYA) (PROJECT 1241.1/2) CLASS (FSGM)

NIKOPOL (ex-*R-54*) U 155 **KREMENCHUK** (ex-*R-63*) U 156

Displacement, tons: 385 standard; 455 full load
Dimensions, feet (metres): 184.1 × 37.7 × 8.2 *(56.1 × 11.5 × 2.5)*
Main machinery: COGAG: 2 Nikolayev Type DR 77 gas turbines; 16,016 hp(m) (*11.77 MW*); 2 Nikolayev DR 76 gas turbines with reversible gearboxes; 4,993 hp(m) (*3.67 MW*) sustained 2 shafts; cp props
Speed, knots: 36. **Range, miles:** 1,650 at 14 kt
Complement: 34 (5 officers)

Missiles: SSM: 4 Raduga SS-N-2D Styx (2 twin); active radar or IR homing to 83 km (*45 n miles*) at 0.9 Mach; warhead 513 kg; sea skimmer at end of run
SAM: 1 SA-N-5 Grail quad launcher; manual aiming; IR homing to 6 km (*3.2 n miles*) at 1.5 Mach; warhead 1.5 kg.
Guns: 1—3 in *(76 mm)*/60; AK-176; 120 rds/min to 15 km (*8 n miles*); weight of shell 7 kg.
2—30 mm/65 AK-630; 6 barrels per mounting; 3,000 rds/min to 2 km.
Countermeasures: Decoys: 4 PK 16 chaff launchers.
Weapons control: Hood Wink optronic director. Light bulb datalink. Band Stand for SSM.
Radars: Air/surface search: Plank Shave; I-band.
Fire control: Bass Tilt; H/I-band (for guns).
Navigation: Kivach III; I-band.
IFF: High Pole B.

Programmes: Both built at Kolpino and originally commissioned in 1983. Transferred in 1997 and recommissioned in 2002 following a refit.

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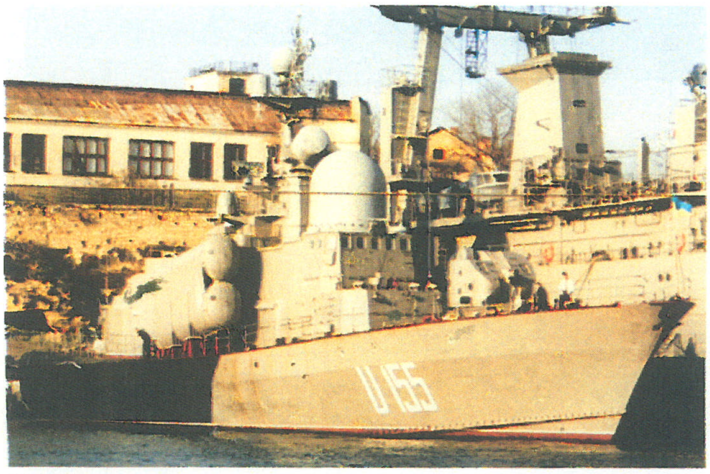

NIKOPOL *3/2002, Hartmut Ehlers* / 0529997

2 MATKA (VEKHR) CLASS (PROJECT 206MP) (FAST ATTACK CRAFT—MISSILE HYDROFOIL) (PGGK)

PRILUKI (ex-R-262) U 153 **KAHOVKA** (ex-R-265) U 154

Displacement, tons: 225 standard; 260 full load
Dimensions, feet (metres): 129.9 × 24.9 (41 over foils) × 6.9 (13.1 over foils) *(39.6 × 7.6 (12.5) × 2.1 (4))*
Main machinery: 3 Type M 504 diesels; 10,800 hp(m) *(7.94 MW)* sustained; 3 shafts
Speed, knots: 40. **Range, miles:** 600 at 35 kt foilborne; 1,500 at 14 kt hullborne
Complement: 33
Missiles: SSM: 2 SS-N-2C/D Styx; active radar or IR homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg; sea-skimmer at end of run.
Guns: 1—3 in *(76 mm)/*60; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
1—30 mm/65 AK 630; 6 barrels per mounting; 3,000 rds/min to 2 km.
Countermeasures: Decoys: 2 PK 16 chaff launchers.
ESM: Clay Brick; intercept.
Weapons control: Hood Wink optronic directors.
Radars: Air/surface search: Plank Shave; E-band.
Navigation: SRN-207; I-band.
Fire control: Bass Tilt; H/I-band.
IFF: High Pole B or Salt Pot B and Square Head.

Comment: Five Russian Black Sea Fleet units transferred in 1996. Built between 1978 and 1983 with similar hulls to the 'Osa' class. One was transferred to Georgia in 1999 and two others (*Uman* and *Tsurupinsk*) have been cannibalised for spares.

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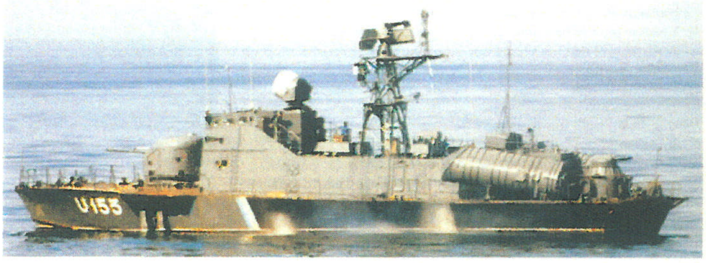

PRILUKI *7/2000* / 0106654

1 ZHUK (GRIF) CLASS (PROJECT 1400M) (PB)

SKADOVSK U 120

Displacement, tons: 39 full load
Dimensions, feet (metres): 78.7 × 16.4 × 3.9 *(24 × 5 × 1.2)*
Main machinery: 2 Type M 401B diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,100 at 15 kt
Complement: 13
Guns: 2—14.5 mm (twin). 1—12.7 mm MG.
Radars: Surface search: Spin Trough; I-band.

Comment: Transferred from Russia in 1997 and became operational in 2000. Others of the class are in service with the Border Guard.

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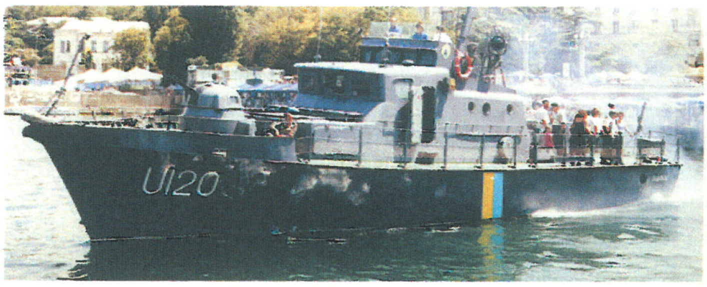

SKADOVSK *7/2000, Hartmut Ehlers* / 0106655

AMPHIBIOUS FORCES

Notes: Two 'Vydra' class LCUs, *Korosten* U 862 and *Bilyaïvka* U 904, are used as trials and transport craft. There are also two 'Ondatra' class LCM, *Svatove* U 430 and *Vil* U 537 and a T-4 LCM *Tarpan* U 538 which are laid up.

1 POLNOCHNY C (PROJECT 773 I) CLASS (LSM)

KIROVOGRAD (ex-SDK 137) U 401

Displacement, tons: 1,120 standard; 1,150 full load
Dimensions, feet (metres): 266.7 × 31.8 × 7.9 *(81.3 × 9.7 × 2.4)*
Main machinery: 2 Kolomna Type 40-D diesels; 4,400 hp(m) *(3.2 MW)* sustained; 2 shafts
Speed, knots: 18. **Range, miles:** 2,000 at 12 kt
Complement: 40-42
Military lift: 350 tons including 6 tanks; 180 troops
Missiles: 4 SA-N-5 Grail quad launchers; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; warhead 1.5 kg; 32 missiles.
Guns: 4—30 mm/65 (2 twin); 2—140 mm 18-tubed rocket launchers.
Radars: Surface search: Spin Trough; I-band.
Fire control: Drum Tilt; H/I-band (for 30 mm guns).

Comment: Built in 1970s and transferred from Russian Fleet in 1994. Reported operational again in 2001 following refit.

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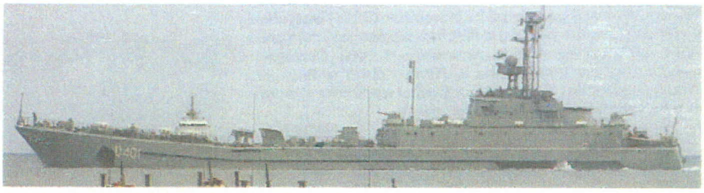

KIROVOGRAD *6/2003*, Ships of the World* / 0572650

1 ROPUCHA I (PROJECT 775) CLASS (LST)

KONSTANTIN OLSHANSKY (ex-RDK 56) U 402

Displacement, tons: 4,400 full load
Dimensions, feet (metres): 370.7 × 47.6 × 11.5 *(113 × 14.5 × 3.6)*
Main machinery: 2 Zgoda-Sulzer 16ZVB40/48 diesels; 19,230 hp(m) *(14.14 MW)* sustained; 2 shafts
Speed, knots: 17.5. **Range, miles:** 3,500 at 16 kt
Complement: 95 (7 officers)
Military lift: 10 MBT plus 190 troops or 24 AFVs plus 170 troops
Missiles: SAM: 4 SA-N-5 Grail quad launchers.
Guns: 4—57 mm/80 (2 twin); 120 rds/min to 6 km *(3.3 n miles)*; weight of shell 2.8 kg.
Weapons control: 2 Squeeze Box optronic directors.
Radars: Air/surface search: Strut Curve; F-band.
Navigation: Don 2; I-band.
Fire control: Muff Cob; G/H-band.
IFF: High Pole B.

Comment: Built at Gdansk, Poland in 1978 and transferred from Russia in 1996. Can be used to carry mines. Ro-Ro design with 540 m² of parking space between the stern gate and the bow doors.
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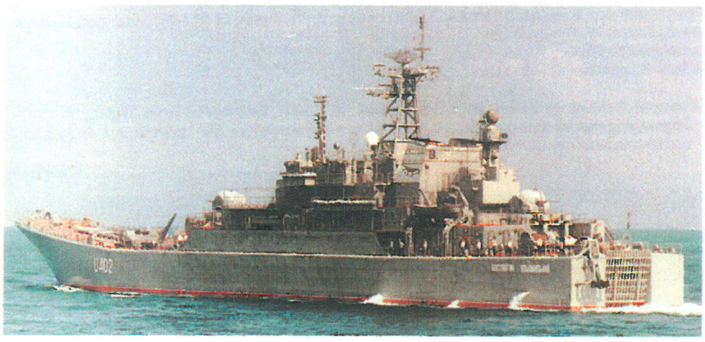

KONSTANTIN OLSHANSKY *8/2000, B Lemachko* / 0131165

1 ALLIGATOR (PROJECT 1171) CLASS (LST)

RIVNE (ex-*BDK 104*) U 400

Displacement, tons: 4,700 full load
Measurement, tons: 370.7 × 50.8 × 14.7 *(113 × 15.5 × 4.5)*
Main machinery: 2 diesels; 9,000 hp(m) *(6.6 MW)*; 2 shafts
Speed, knots: 18. **Range, miles:** 10,000 at 15 kt
Complement: 100
Military lift: 300 troops; 1,700 tons including about 20 tanks and various trucks; 40 AFVs
Radars: Surface search: 2 Don 2; I-band.

Comment: Launched in 1971 and transferred from Russian Fleet in 1994. This is the Type 2 variant of this class. Disarmed in 1997, refitted in 1999 but in view of lack of activity, operational status is doubtful.
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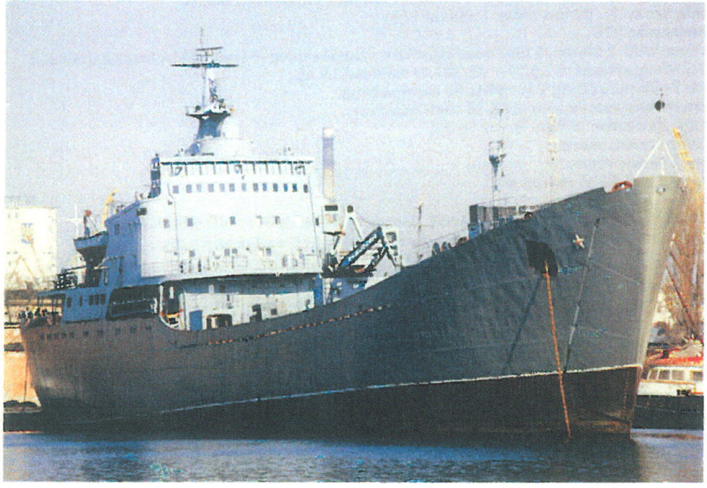

RIVNE *4/1997, Ukraine Navy* / 0019345

2 POMORNIK (ZUBR) (PROJECT 1232.2) CLASS (ACV/LCUJM)

DONETSK U 420 **ARTEMIVSK** (ex-MDK-93) U 424

Displacement, tons: 550 full load
Dimensions, feet (metres): 189 × 70.5 *(57.6 × 21.5)*
Main machinery: 5 Type NK-12MV gas turbines; 2 for lift, 23,672 hp(m) *(17.4 MW)* nominal; 3 for drive, 35,508 hp(m) *(26.1 MW)* nominal
Speed, knots: 60. **Range, miles:** 300 at 55 kt
Complement: 31 (4 officers)
Military lift: 3 MBT or 10 APC plus 230 troops (total 170 tons)
Missiles: SAM: 2 SA-N-5 Grail quad launchers; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg.
Guns: 2—30 mm/65 AK 630; 6 barrels per mounting; 3,000 rds/min combined to 2 km. 2 retractable 122 mm rocket launchers.
Mines: 80.
Countermeasures: Decoys: TSP 41 chaff.
ESM: Tool Box; intercept.
Weapons control: Quad Look (modified Squeeze Box) (DWU 3) optronic director.
Radars: Air/surface search: Cross Dome (Ekran); I-band.
Fire control: Bass Tilt MR 123; H/I-band.
IFF: Salt Pot A/B. Square Head.

Comment: *Donetsk* was completed by Morye, Feodosiya on 20 July 1993. Sister *U 421* was incomplete in 1999 when procured by Greece, delivery being made in 2001. Three further craft were transferred from Russia in 1996. Of these, *U 423* (ex-*MDK 123*) was also sold to Greece, *U 422* (ex-*MDK 57*) is not operational and U 424 remains in service.
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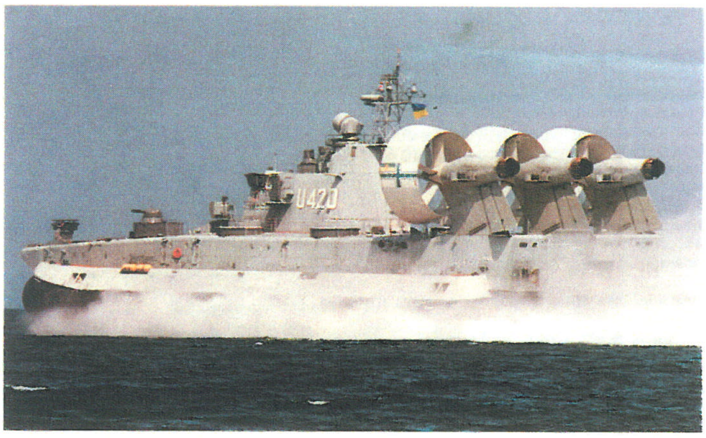


DONETSK *8/2000, B Lemachko* / 0131164

MINE WARFARE FORCES

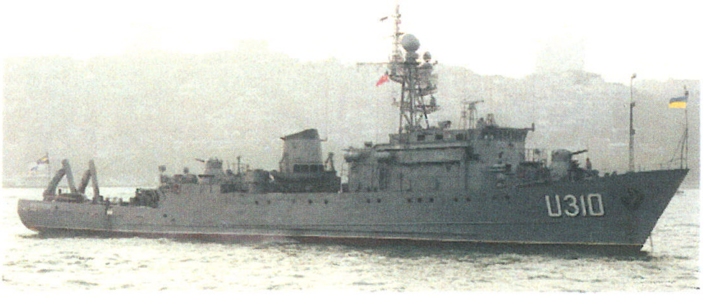
2 NATYA I CLASS (PROJECT 266M) (MSO)

ZHOVTI VODY (ex-*Zenitchik*) U 310 **CHERKASY** (ex-*Razvedchik*) U 311

Displacement, tons: 804 full load
Dimensions, feet (metres): 200.1 × 33.5 × 9.8 *(61 × 10.2 × 3)*
Main machinery: 2 Type M 504 diesels; 5,000 hp(m) *(3.67 MW)* sustained; 2 shafts; cp props
Speed, knots: 16. **Range, miles:** 3,000 at 12 kt
Complement: 67 (8 officers)

Guns: 4—30 mm/65 (2 twin) AK 306 or 2—30 mm/65 AK 630; 4—25 mm/80 (2 twin).
A/S mortars: 2 RBU 1200 5-tubed fixed.
Depth charges: 62.
Mines: 10.
Countermeasures: MCM: 1 or 2 GKT-2 contact sweeps; 1 AT-2 acoustic sweep. 1 TEM-3 magnetic sweep.
Radars: Surface search: Long Trough; E-band.
Fire control: Drum Tilt; H/I-band.
IFF: 2 Square Head. High Pole B.
Sonars: MG 79/89; hull-mounted; active minehunting; high frequency.

Comment: Built in the mid-1970s. Transferred from Russia in 1996. Both are operational.
UPDATED



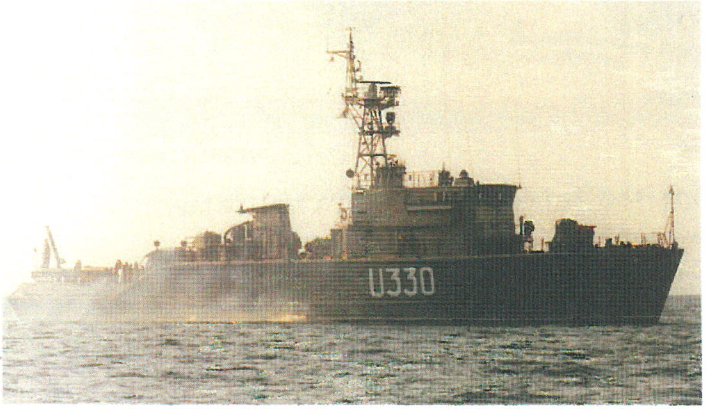
ZHOVTI VODY *9/2002, C D Yaylali* / 0530030

2 SONYA (YAKHONT) (PROJECT 1265) CLASS (MHSC)

MELITOPOL (ex-BT 79) U 330 **MARIUPOL** (ex-BT 126) U 331

Displacement, tons: 460 full load
Dimensions, feet (metres): 157.4 × 28.9 × 6.6 *(48 × 8.8 × 2)*
Main machinery: 2 Kolomna diesels; 2,000 hp(m) *(1.47 MW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 3,000 at 10 kt
Complement: 43
Guns: 2—30 mm/65 (twin). 2—25 mm/80 (twin).
Mines: 8.
Radars: Surface search: Don 2; I-band.
IFF: Two Square Head.
Sonars: MG 69/79; hull-mounted; active; high frequency.

Comment: Built in 1978. Transferred from Russia in 1996. Wooden hulls.
UPDATED



MELITOPOL *6/2003*, B Lemachko* / 0572653

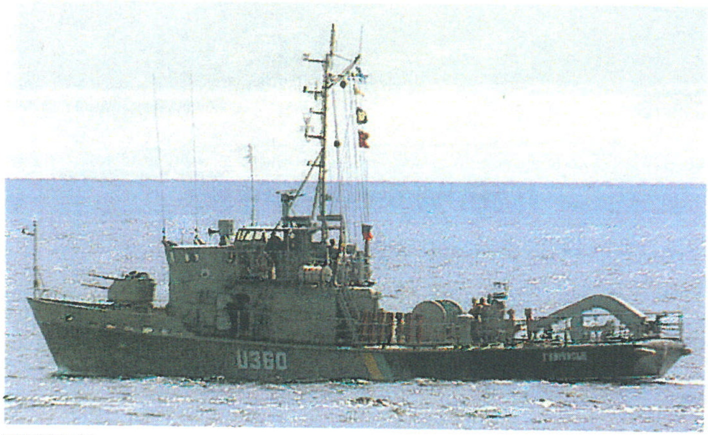
1 YEVGENYA (KOROND) (PROJECT 1258) CLASS (MHC)

GENICHESK (ex-RT 214) U 360

Displacement, tons: 77 standard; 90 full load
Dimensions, feet (metres): 80.7 × 18 × 4.9 *(24.6 × 5.5 × 1.5)*
Main machinery: 2 Type 3-D-12 diesels; 600 hp(m) *(440 kW)* sustained; 2 shafts
Speed, knots: 11. **Range, miles:** 300 at 10 kt
Complement: 10
Guns: 2—14.5 mm (twin) MGs.
Mines: 8 racks.
Radars: Surface search: Spin Trough or Mius; I-band.
IFF: Salt Pot.
Sonars: A small MG-7 sonar is lifted over stern on crane; a TV system may also be used.

Comment: Transferred from Russia in 1996. Reported as being operational.

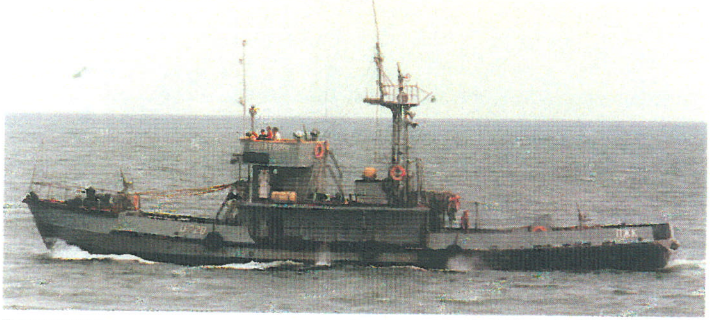
UPDATED



GENICHESK *6/2003*, Ships of the World* / 0572652

AUXILIARIES

Notes: Other ships transferred from Russia in 1997, and possibly still in limited service, are a 'Keyla II' class tanker, *Kriviy Rig* U 753, two 'Toplivo' class tankers, *Fastiv* U 760 and *Bahmach* U 759, two 'Pozharny' class, ATR *Borshev* U 722 and *Evpatoriya* U 728 and a 'Shalanda' class trials craft *Kamyankha* U 860.



EVPATORIYA *8/2000, B Lemachko* / 0131163

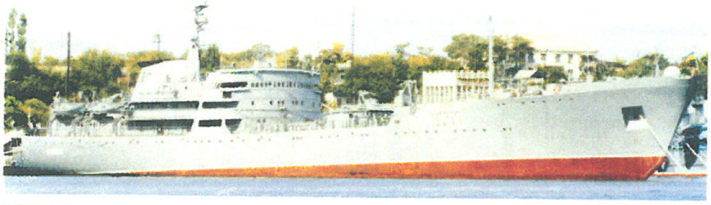
1 AMUR (PROJECT 304) CLASS SUPPORT SHIP (AGF/AR)

DONBAS (ex-*Krasnodon)* U 500 (ex-U 803)

Displacement, tons: 5,500 full load
Dimensions, feet (metres): 400.3 × 55.8 × 16.7 *(122 × 17 × 5.1)*
Main machinery: 1 Zgoda 8 TAD-48 diesel; 3,000 hp(m) *(2.2 MW)*; 1 shaft
Speed, knots: 12. **Range, miles:** 13,000 at 8 kt
Complement: 145
Radars: Navigation: Don 2; I-band.

Comment: Transferred in 1977. Completed refit in 2001 to serve as command ship and support ships for surface ships and submarines based at Sevastopol. Has two 3-ton cranes and one 1.5-ton crane.

UPDATED



DONBAS *7/2003*, B Lemachko* / 0576461

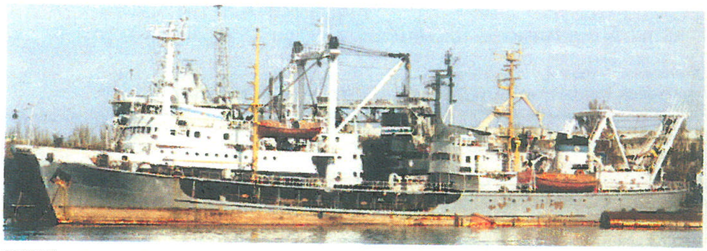
1 VODA (PROJECT 561) CLASS WATER TANKER (AWT)

SUDAK (ex-*Sura)* U 756

Displacement, tons: 982 standard; 2,250 full load
Dimensions, feet (metres): 266.8 × 37.4 × 11.3 *(81.3 × 11.4 × 3.44)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 12. **Range, miles:** 2,900 at 10 kt
Complement: 22
Radars: Navigation: Don 2; I-band.

Comment: Transferred in 1977. Has a three ton derrick.

VERIFIED



SUDAK *3/2002, Hartmut Ehlers* / 0529996

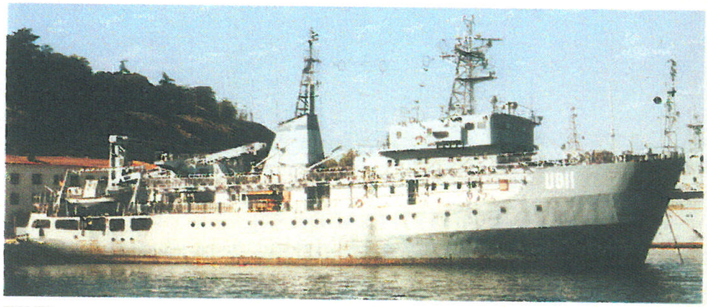
1 BEREZA CLASS (PROJECT 18061) (ADG)

BALTA U 811 (ex-*SR 568*)

Displacement, tons: 1,850 standard; 2,051 full load
Dimensions, feet (metres): 228 × 45.3 × 13.1 *(69.5 × 13.8 × 4)*
Main machinery: 2 Zgoda-Sulzer 8AL25/30 diesels; 2,938 hp(m) *(2.16 MW)* sustained; 2 shafts
Speed, knots: 14. **Range, miles:** 1,000 at 14 kt
Complement: 88
Radars: Navigation: Kivach; I-band.

Comment: Built at Northern Shipyard, Gdansk in 1987. Transferred from Russia in 1997. Degaussing vessel with an NBC citadel and three laboratories. Not seen at sea since being transferred but may be in use.

VERIFIED



BALTA *9/1998, Hartmut Ehlers* / 0050313

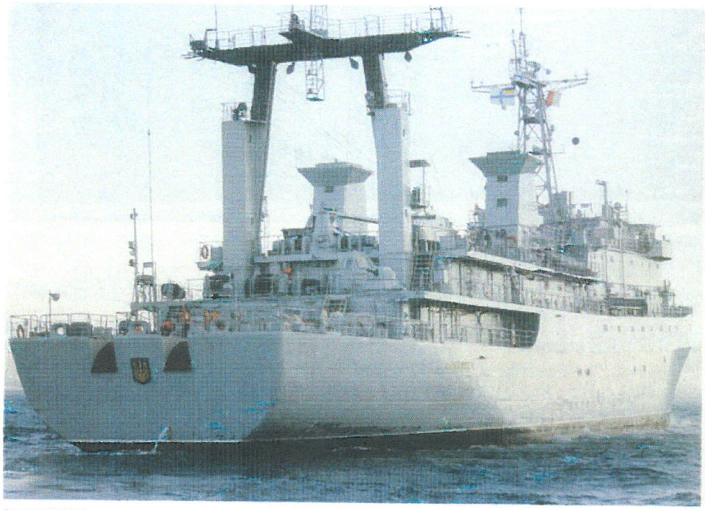
1 BAMBUK (PROJECT 12884) CLASS (AGFHM)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SLAVUTICH	U 510 (ex-800, ex-SSV 189)	Nikolayev	12 Oct 1990	28 July 1992

Displacement, tons: 5,403 full load
Dimensions, feet (metres): 350.1 × 52.5 × 19.7 *(106.7 × 16 × 6)*
Main machinery: 2 Skoda 6L2511 diesels; 6,100 hp(m) *(4.5 MW)*; 2 shafts
Speed, knots: 16. **Range, miles:** 8,000 at 12 kt
Complement: 178
Missiles: SAM: 2 SA-N-5/8 Grail quad launchers; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg.
Guns: 2—30 mm/65 AK 630; 6 barrels per mounting.
Countermeasures: Decoys: 2 PK 16 chaff launchers.
Radars: Navigation: 3 Palm Frond; I-band.
CCA: Fly Screen; I-band.
Tacan: 2 Round House.
Helicopters: 2 Ka-25 Hormone C.

Comment: Laid down on 20 March 1988. Second of a class built for acoustic research but taken over before completion and used as a command ship by the Ukrainian Navy.

UPDATED



SLAVUTICH *6/2000, van Ginderen Collection* / 0106665

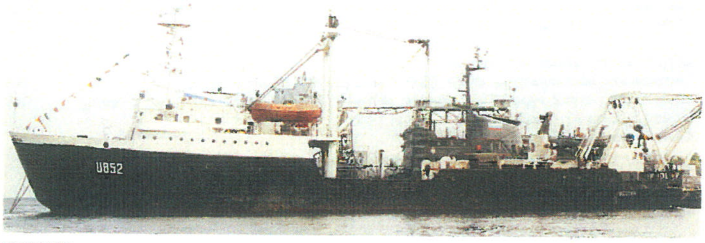
SLAVUTICH *7/2000, Hachiro Nakai* / 0106664

1 SURA (PROJECT 145) CLASS (ABU)

SHOSTKA (ex-*Kil 33*) U 852

Displacement, tons: 2,370 standard; 3,150 full load
Dimensions, feet (metres): 285.4 × 48.6 × 16.4 *(87 × 14.8 ×5)*
Main machinery: Diesel-electric; 4 diesel generators; 2 motors; 2,240 hp(m) *(1.65 MW)*; 2 shafts
Speed, knots: 12. **Range, miles:** 2,000 at 11 kt
Complement: 40
Cargo capacity: 900 tons cargo; 300 tons fuel for transfer
Radars: Navigation: 2 Don 2; I-band.

Comment: Transferred from Russia in 1997. Heavy lift ship built at Rostock in 1973. Lifting capacity includes one 65 ton derrick and one 65 ton stern cage. Can carry a 12 m DSRV, although this has not been seen in Ukrainian service. ***VERIFIED***



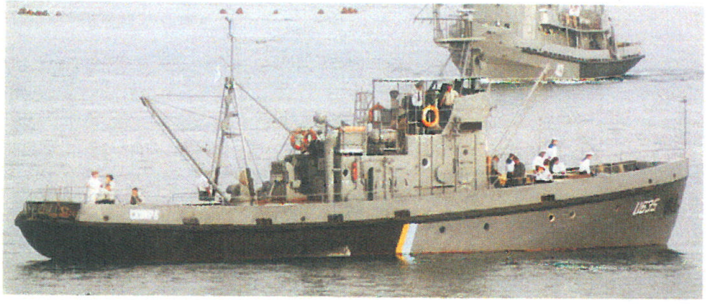
SHOSTKA *8/2000, Hartmut Ehlers* / 0106666

18 HARBOUR CRAFT (YDT/YFL/YPT)

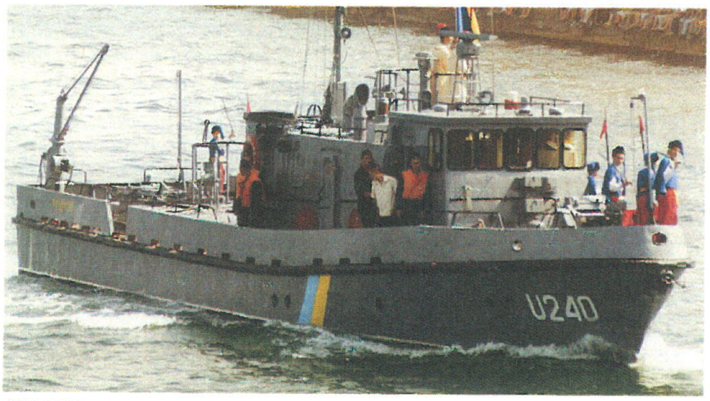
FEODOSIYA U 240
SKVYRA U 635
MIRGOOD U 731
TOKMAK U 733
+3
V VOLNIDSKY U 721
BRODI U 707
U 241
U 631-634
U 732
U 926
MALIN U 890
MONASTIRISHZE U891

Displacement, tons: 42 full load
Dimensions, feet (metres): 72.8 × 12.8 × 4.6 *(22.2 × 3.9 × 1.4)*
Main machinery: 1 diesel; 300 hp(m) *(220 kW)* sustained; 1 shaft
Speed, knots: 12
Complement: 8

Comment: Details given are for the 'Flamingo' class harbour patrol craft of which there are five (*U 240, U 634, U 721, U 732, U 733*). There are also five 'Nyryat 1' diving tenders and inshore survey craft (*U 631, U 632, U 633, U 635, U 707*) and six 'PO 2' class tenders (*U 731, U 926* plus four). There are also two 'Shelon' class YPTs (*U 890, U 891*). ***VERIFIED***



SKVYRA *7/2000, Hartmut Ehlers* / 0106668



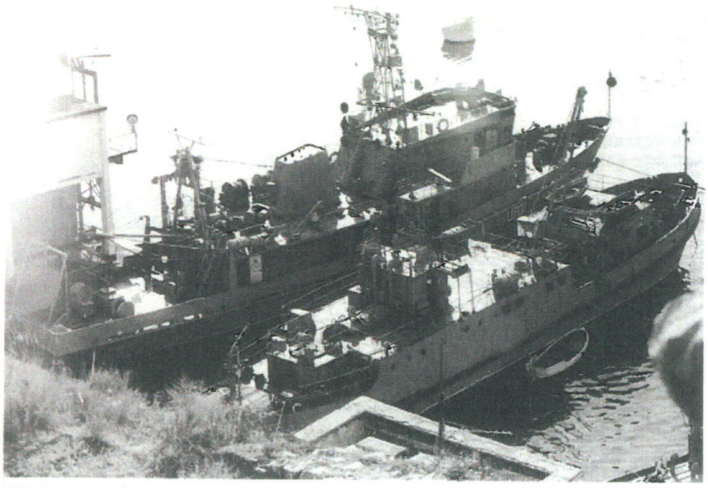
FEODOSIYA *7/2000, Hartmut Ehlers* / 0106667

1 YELVA (PROJECT 535M) CLASS (DIVING TENDER) (YDT)

NETISIN U 700

Displacement, tons: 295 full load
Dimensions, feet (metres): 134.2 × 26.2 × 6.6 *(40.9 × 8 × 2)*
Main machinery: 2 Type 3-D-12A diesels; 630 hp(m) *(463 kW)* sustained; 2 shafts
Speed, knots: 12.5. **Range, miles:** 1,870 at 12 kt
Complement: 30
Radars: Navigation: Spin Trough; I-band.

Comment: Diving tender built in mid-1970s. Transferred from Russia in 1997. Carries a 1 ton crane and diving bell. Operational. ***VERIFIED***



YELVA CLASS (to left) *6/1998, van Ginderen Collection* / 0050315

SURVEY SHIPS

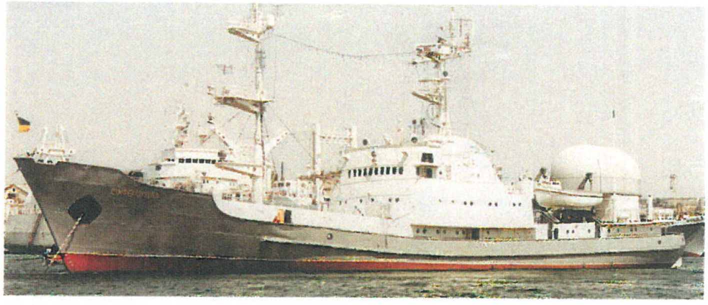
Notes: (1) Also transferred in 1997 were two 'Muna' class AGIs, *Pereyaslav* U 512 and *Dzhankoi* U 754. Both are used as transports, mostly for commercial goods.
(2) Ten former Russian civilian research ships were transferred in 1996/97. All are now in commercial service.

2 MOMA (PROJECT 861M) CLASS (AGS)

SIMFEROPOL (ex-*Jupiter*) U 511 — (ex-*Berezan*) U 602

Displacement, tons: 1,600 full load
Dimensions, feet (metres): 240.5 × 36.8 × 12.8 *(73.3 × 11.2 × 3.9)*
Main machinery: 2 Zgoda-Sulzer diesels; 3,300 hp(m) *(2.43 MW)* sustained; 2 shafts; cp props
Speed, knots: 17. **Range, miles:** 9,000 at 11 kt
Complement: 56
Radars: Navigation: Don 2; I-band.

Comment: U 511 transferred from Russia in February 1996 and is active. A second of class *U 602* has also been reported as active. ***UPDATED***



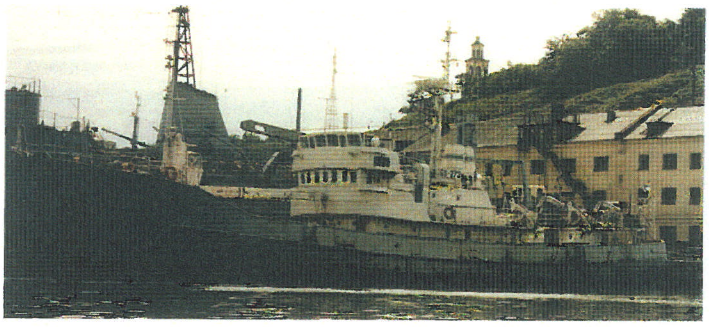
SIMFEROPOL *7/2000, Hartmut Ehlers* / 0106669

2 BIYA (PROJECT 870) CLASS (AGS)

ALCHEVSK U 601 (ex-*GS 212*) **U 603** (ex-GS 273)

Displacement, tons: 766 full load
Dimensions, feet (metres): 180.4 × 32.1 × 8.5 *(55 × 9.8 × 2.6)*
Main machinery: 2 diesels; 1,200 hp(m) *(882 kW)*; 2 shafts; cp props
Speed, knots: 13. **Range, miles:** 4,700 at 11 kt
Complement: 25
Radars: Navigation: Don 2; I-band.

Comment: Built at Northern Shipyard, Gdansk 1972-76. Transferred from Russia in 1997. Laboratory and one survey launch, and a 5 ton crane. ***UPDATED***



ALCHEVSK *8/1997, W Globke* / 0019356

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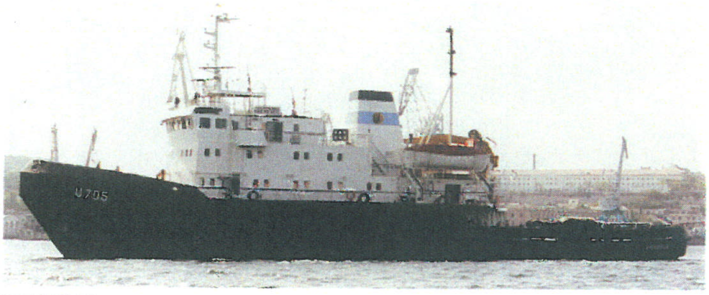
TUGS

6 TUGS (ATA/YTM)

IZYASLAV U 706
KRASNOPEREKOPSK U 947
KORETS U 830
KREMENETS U 705
DUBNO U 953
KOVEL U 831

Comment: All transferred from Russia in 1997. *U 706* and *U 831* are 'Okhtensky' class coastal tugs built in 1958. *U 705* is a 'Goryn' class ocean going tug with a bollard pull of 45 tons, *U 830* is a 'Sorum' class and *U 947* a 'Prometey' class large tug. *U 953* is a 'Sidehole II' class harbour tug. ***VERIFIED***



KREMENETS *7/2000, Hartmut Ehlers* / 0106670

TRAINING SHIPS

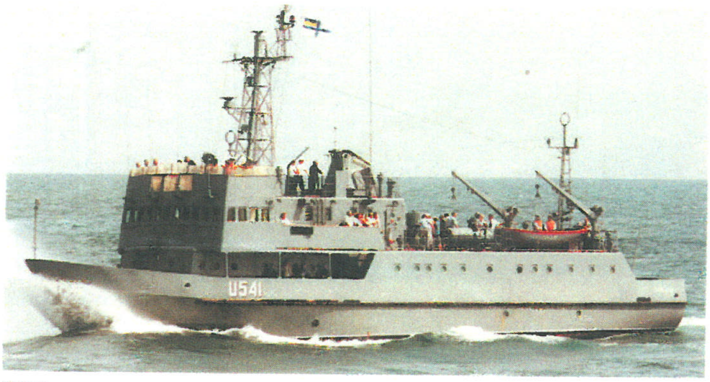
Note: In addition there are two 'Bryza' class training cutters *U 543* and *U 544*.

4 PETRUSHKA (DRAKON) CLASS (AXL)

CHIGIRIN U 540
SMILA U 541
DARNICHA U 542
SOKAL U 782

Displacement, tons: 335 full load
Dimensions, feet (metres): 129.3 × 27.6 × 7.2 *(39.4 × 8.4 × 2.2)*
Main machinery: 2 Wola H12 diesels; 756 hp(m) *(556 kW)*; 2 shafts
Speed, knots: 11. **Range, miles:** 1,000 at 11 kt
Complement: 13 plus 30 cadets

Comment: Training vessels built at Wisla Shiyard, Poland in 1989. Transferred from Russia in 1997. Used for seamanship and navigation training. *U 782* acts as a tender. ***VERIFIED***



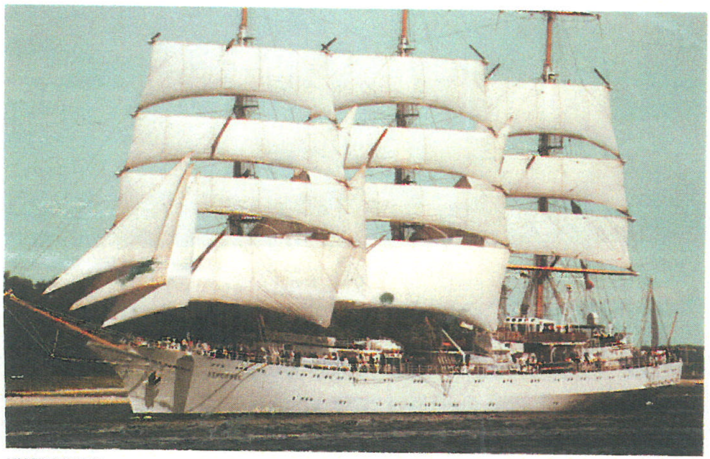
SMILA *4/2001, B Lemachko* / 0131162

1 MIR CLASS (SAIL TRAINING SHIP) (AXS)

Name	*No*	*Builders*	*Commissioned*
KHERSONES	–	Northern Shipyard, Gdansk	10 June 1988

Measurement, tons: 2,996 grt
Dimensions, feet (metres): 346.1 × 45.9 × 19.7 *(105.5 × 14 × 6)*
Main machinery: 1 Sulzer 8AL20/24 diesels; 1,500 hp(m) *(1.1 MW)*; 1 shaft
Speed, knots: 17
Complement: 55 plus 144 trainees

Comment: One of five of a class ordered in July 1985. Civilian manned. ***VERIFIED***



KHERSONES *6/2001, van Ginderen Collection* / 0131161

BORDER GUARD (MORSKA OKHORONA)

Notes: (1) There are plans to build new patrol cutters of the 'Kordon' (47 m) and 'Afalina' (44 m) classes, and new patrol boats of the 'Scif' (26 m) class. These new designs are also on offer for export by the Feodosiya Shipbuilding Association Morye. A 67 m OPV design, by Nikolayev 61 Kommuna shipyard, is also in the export market.
(2) The river brigades also include four minesweeping boats, and 16 training craft. Not all of these are operational.
(3) Border Guard vessels are painted dark grey with a thick yellow and thin blue diagonal line on the hull. From July 1999, pennant numbers were changed and are preceded by the letters BG.

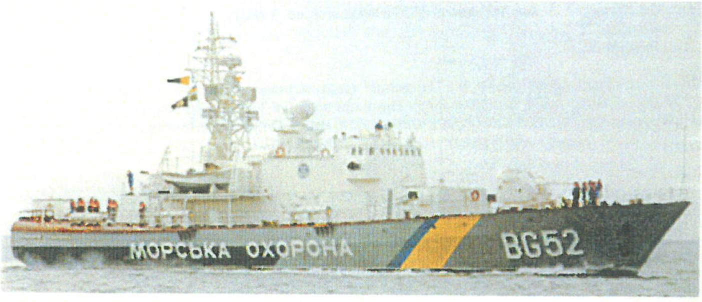
3 PAUK I (MOLNYA) CLASS (PROJECT 1241) (PC)

GRIGORY KUROPIATNIKOV BG 50 (ex-PSKR 817)
GRIGORY GNATENKO BG 52 (ex-PSKR 815)
POLTAVA BG 51 (ex-PSKR 813)

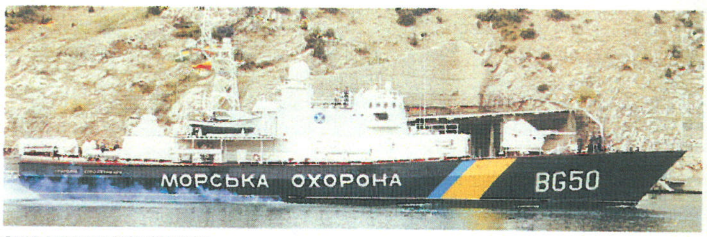
Displacement, tons: 475 full load
Dimensions, feet (metres): 189 × 33.5 × 10.8 *(57.6 × 10.2 × 3.3)*
Main machinery: 2 Type M 521 diesels; 16,184 hp(m) *(11.9 MW)* sustained; 2 shafts
Speed, knots: 32. **Range, miles:** 1,260 at 14 kt
Complement: 44 (7 officers)

Guns: 1—3 in *(76 mm)*/60; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
1—30 mm/65 AK 630; 6 barrels; 3,000 rds/min combined to 2 km.
Torpedoes: 4—16 in *(406 mm)* tubes. SAET-40; anti-submarine; active/passive homing to 10 km *(5.4 n miles)* at 30 kt; warhead 100 kg.
A/S mortars: 2 RBU 1200 5-tubed fixed; range 1,200 m; warhead 34 kg.
Depth charges: 2 racks (12).
Countermeasures: Decoys: 2 PK 16 or 4 PK 10.
ESM: Brick Plug and Half Hat; radar warning.
Weapons control: Hood Wink optronic director.
Radars: Air/surface search: Peel Cone; E/F-band.
Surface search: Kivach or Pechora or SRN 207; I-band.
Fire control: Bass Tilt; H/I-band.
Sonars: Foal Tail; VDS (mounted on transom); active attack; high frequency.

Comment: Built at Yaroslavl in the early 1980s and transferred from Russian Black Sea Fleet. Pennant numbers changed from July 1999. All are based at Balaklava. ***UPDATED***



GRIGORY GNATENKO *6/2003*, B Lemachko* / 0576460



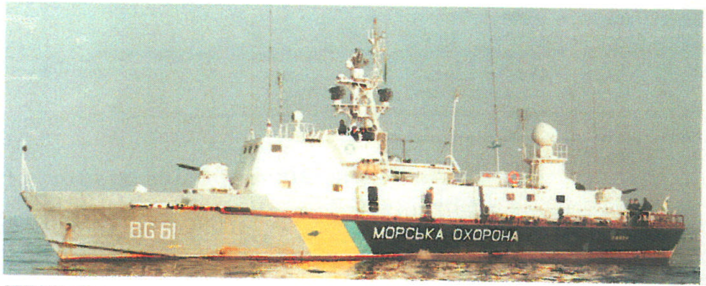
GRIGORY KUROPIATNIKOV *8/2000, Hartmut Ehlers* / 0106673

13 STENKA (TARANTUL) CLASS (PROJECT 205P) (PCF)

DONBAS BG 32 (ex-PSKR 705)
MIKOLAIV BG 57 (ex-PSKR 722)
VOLIN (ex-020, ex-PSKR 637)
ZAKARPATTIYA (ex-031, ex-PSKR 648)
ZAPORIZKAYA SEC (ex-032, ex-PSKR 650)
ODESSA (ex-033, ex-PSKR 652)
BUKOVINA (ex-034, ex-PSKR 702)
PODILLIYA (ex-036, ex-PSKR 709)
PAVEL DERZHAVIN (ex-037, ex-PSKR 720)
+ 4

Displacement, tons: 253 full load
Dimensions, feet (metres): 129.3 × 25.9 × 8.2 *(39.4 × 7.9 × 2.5)*
Main machinery: 3 Type M 517 or M 583 diesels; 14,100 hp(m) *(10.36 MW)*; 3 shafts
Speed, knots: 37. **Range, miles:** 500 at 35 kt; 1,540 at 14 kt
Complement: 30 (5 officers)
Guns: 4—30 mm/65 (2 twin) AK 230.
Torpedoes: 4—16 in *(406 mm)* tubes.
Depth charges: 2 racks (12).
Radars: Surface search: Pot Drum or Peel Cone; H/I- or E-band.
Fire control: Drum Tilt; H/I-band.
Navigation: Palm Frond; I-band.
IFF: High Pole. 2 Square Head.
Sonars: Stag Ear or Foal Tail; VDS; high frequency; Hormone type dipping sonar.

Comment: Similar hull to the 'Osa' class. Built in the 1970s and 1980s. Transferred from Russia. Others have been cannibalised for spares. Based at Kerch (three), Odessa (eight) and Balaklava (two). ***UPDATED***



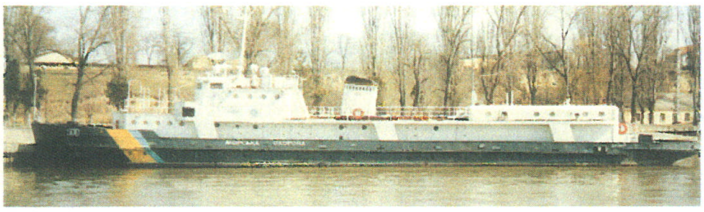
STENKA class *6/2001, B Lemachko* / 0131160

1 SSV-10 CLASS (SUPPORT SHIP) (AGF)

DUNAI BG 80 (ex-500)

Displacement, tons: 340 full load
Dimensions, feet (metres): 129.3 × 23 × 3.9 *(39.4 × 7 × 1.2)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 12
Complement: 20 (4 officers)

Comment: Headquarters ship built in 1940. Taken over from the Russian Danube Flotilla and now acts as the command ship for the river brigades. Based at Odessa. ***VERIFIED***



DUNAI (old number) *4/1998, Ukraine Coast Guard* / 0050322

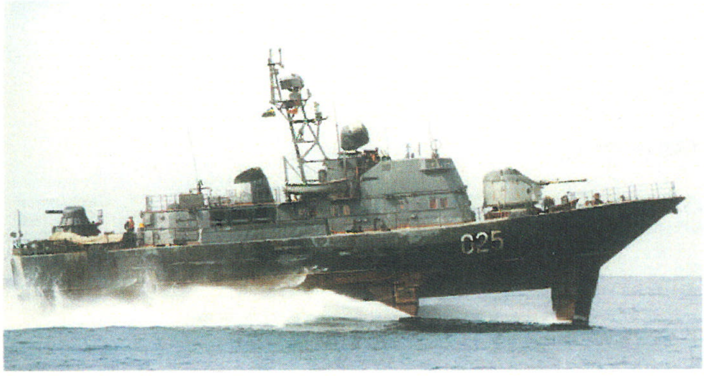
3 MURAVEY (ANTARES) CLASS (PROJECT 133) (PCK)

BG 53 (ex-PSKR 105) **BG 54** (ex-PSKR 108) **GALICHINA** BG 55 (ex-PSKR 115)

Displacement, tons: 212 full load
Dimensions, feet (metres): 126.6 × 24.9 × 6.2; 14.4 (foils) *(38.6 × 7.6 × 1.9; 4.4)*
Main machinery: 2 gas turbines; 22,600 hp(m) *(16.6 MW)*; 2 shafts
Speed, knots: 60. **Range, miles:** 410 at 12 kt
Complement: 30 (5 officers)

Guns: 1—3 in *(76 mm)*/60; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg.
1—30 mm/65 AK 630; 6 barrels; 3,000 rds/min combined to 2 km.
Torpedoes: 2—16 in *(406 mm)* tubes; SAET-40; anti-submarine; active/passive homing to 10 km *(5.4 n miles)* at 30 kt; warhead 100 kg.
Depth charges: 6.
Weapons control: Hood Wink optronic director.
Radars: Surface search: Peel Cone; E-band.
Fire control: Bass Tilt; H/I-band.
Sonars: Rat Tail; VDS; active attack; high frequency; dipping sonar.

Comment: Built at Feodosiya in the mid-1980s for the USSR Border Guard. High speed hydrofoil craft. All based at Balaklava. Pennant numbers changed from July 1999. ***UPDATED***



BG 53 (old number) *3/1998, Ukraine Coast Guard* / 0050319

27 ZHUK (GRIF) CLASS (PROJECT 1400M) (PB)

BG 100-126

Displacement, tons: 39 full load
Dimensions, feet (metres): 78.7 × 16.4 × 3.9 *(24 × 5 × 1.2)*
Main machinery: 2 Type M 401B diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,100 at 15 kt
Complement: 13 (1 officer)
Guns: 2—14.5 mm (twin, fwd) MGs. 1—12.7 mm (aft) MG.
Radars: Surface search: Spin Trough; I-band.

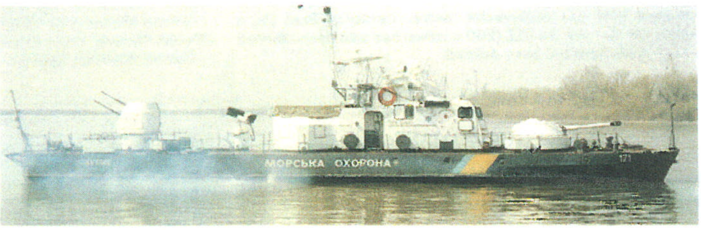
Comment: Russian Border Guard vessels built in the 1980s and transferred in 1996. Pennant numbers changed from the 600 series in mid-1999. ***UPDATED***

4 SHMEL CLASS (PROJECT 1204) (PGR)

LUBNY BG 81 (ex-171) **KANIV** BG 82 (ex-173) **NIZYN** BG 83 (ex-172) **IZMAYL** BG 84 (ex-174)

Displacement, tons: 77 full load
Dimensions, feet (metres): 90.9 × 14.1 × 3.9 *(27.7 × 4.3 × 1.2)*
Main machinery: 2 Type M 50 diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 600 at 12 kt
Complement: 12 (4 officers)
Guns: 1—3 in *(76 mm)*/48 (tank turret). 2—14.5 mm (twin) MGs. 5—7.62 mm MGs. 1 BP 6 rocket launcher; 18 barrels.
Mines: Can lay 9.
Radars: Surface search: Spint Trough; I-band.

Comment: Built at Kerch from 1967-74. Now part of the river brigade having been transferred from the Russian Danube flotilla. New pennant numbers are unconfirmed and there is doubt about the operational status of this class. ***VERIFIED***



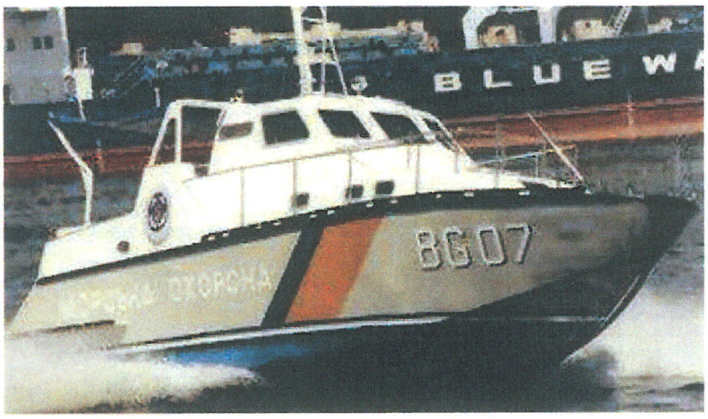
LUBNY (old number) *4/1998, Ukraine Coast Guard* / 0050323

17 KALKAN (PROJECT 50030) M CLASS (INSHORE PATROL CRAFT) (PBR)

BG 303-304 **BG 503-504** **BG 807-808** +8
BG 604 **BG 320** **BG 333**

Displacement, tons: 8.5 full load
Dimensions, feet (metres): 38.1 × 10.8 × 2.0 *(11.6 × 3.3 × 0.6)*
Main machinery: 1 Type 475K diesel; 496 hp *(370 kW)*; 1 waterjet
Speed, knots: 34
Complement: 2

Comment: Built by Morye Feodosiya and entered service from 1996. Aluminium hulls and GRP superstructure. Can be armed with 7.62 mm or 12.7 mm MGs and 'Strela' shoulder launched missile. ***UPDATED***



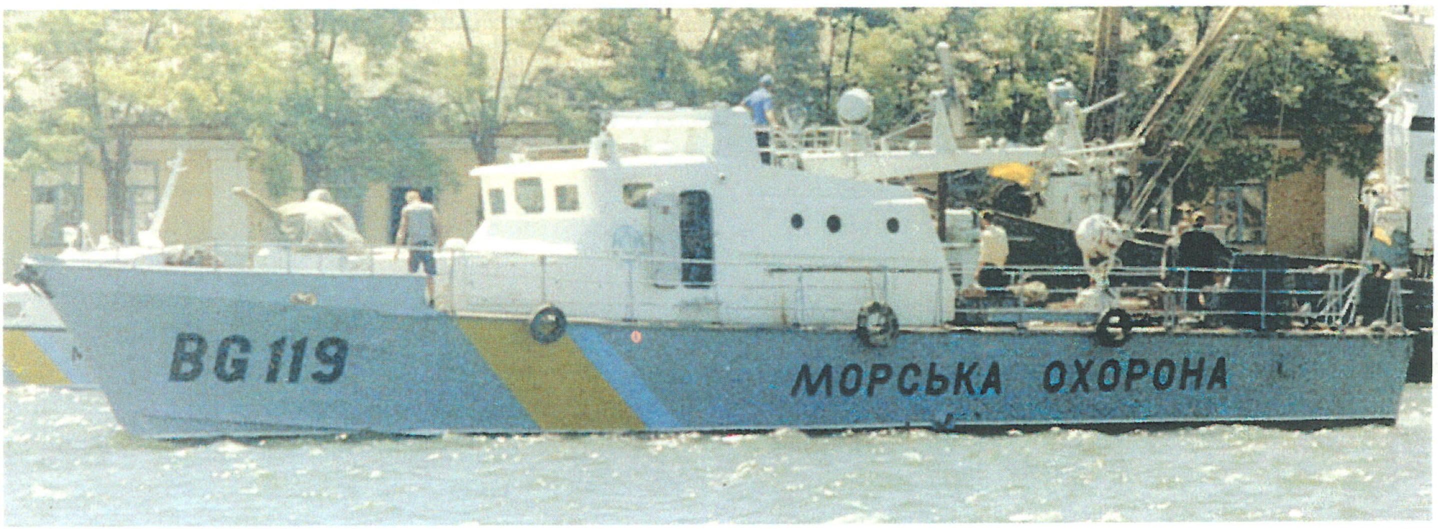
KALKAN class *6/2003*, Morye* / 0572655

2 PO2 CLASS (COASTAL PATROL CRAFT) (PB)

BG 501 **BG 503**

Displacement, tons: 56 full load
Dimensions, feet (metres): 70.5 × 11.5 × 3.3 *(21.5 × 3.5 × 1)*
Main machinery: 1 Type 3-D-12 diesel; 150 hp(m) *(110 kW)* sustained; 1 shaft
Speed, knots: 12
Complement: 8

Comment: Based at Balaclava. ***NEW ENTRY***



BG 119 *2000, B Lemachko* / 0105930

United Arab Emirates

Country Overview

The United Arab Emirates was formed on 2 December 1971 by the federation of seven states (formerly the Trucial States) lying along the east-coast of the Arabian Peninsula. With an area of 30,000 square miles, the country includes Abu Dhabi, Ajman, Dubai, al-Fujairah, Ras al Khaimah, Sharjah and Umm al-Qaiwain. It is bordered to the north by Qatar and to the south by Saudi Arabia. To the east lies Oman which is separated from its small exclave on the Musandam peninsula. There is a coastline of 713 n miles with the Gulf and with the Gulf of Oman. The city of Abu Dhabi is the capital and largest city while Dubai is the principal port and commercial centre. Territorial Seas (12 n miles) are claimed. An EEZ (200 n miles) has also been claimed but its limits have not been defined.

Following a decision of the UAE Supreme Defence Council on 6 May 1976 the armed forces of the member states were unified and the organisation of the UAE armed forces was furthered by decisions taken on 1 February 1978.

Headquarters Appointments

Commander, Naval Forces:
Brigadier Suhail Shaheen Al-Murar
Deputy Commander, Naval Forces:
Colonel Mohammad Mehmood Al-Madni
Director General, Coast Guard:
Colonel Abdullah Rahman Saleh Shelwah

Personnel

(a) 2004: 2,400 (200 officers) Navy. 1,200 (110 officers) Coast Guard.
(b) Voluntary service

Bases

Abu Dhabi (main base).
Mina Rashid and Mina Jebel Ali (Dubai),
Mina Saqr (Ras al Khaimah), Mina Sultan (Sharjah),
Khor Fakkan (Sharjah-East Coast).

SUBMARINES

Notes: Two ex-German Type 206 may be acquired and some training has been done.

10 SWIMMER DELIVERY VEHICLES (SDV)

Comment: Two classes of indigenously built Long Range Submersible Carriers (LRSC) have been developed by Emirates Marine Technologies. The 7.35 × 0.95 m Class 4 variant, of which approximately ten are believed to have been in service with UAE Special Forces since 1998, is capable of deploying a 200 kg payload. These are likely to be augmented by the larger 9.1 × 1.15 m Class 5 variant which can deliver 450 kg. Constructed of glass and carbon fibres, both variants are manned by two people, have a top speed of 7 kt, a range of 60 n miles at 6 kt and an operational depth of 30 m. They are equipped with depth-sounder, sonar and built-in breathing system.

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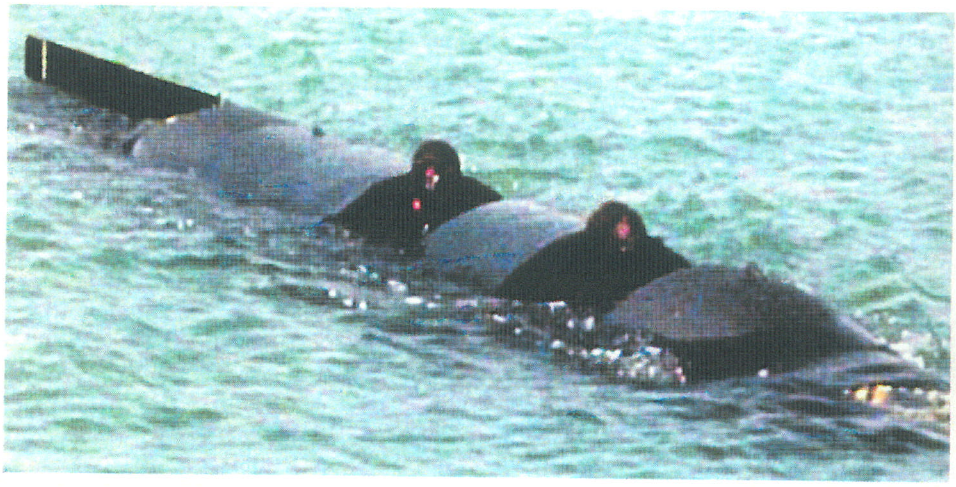

CLASS 5 LRSC
2001, Emirates Marine Technologies / 0095256

FRIGATES

2 KORTENAER CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ABU DHABI (ex-*Abraham Crijnssen*)	F 01 (ex-F 816)	Koninklijke Maatschappij De Schelde, Flushing	25 Oct 1978	16 May 1981	27 Jan 1983
AL EMIRAT (ex-*Piet Heyn*)	F 02 (ex-F 811)	Koninklijke Maatschappij De Schelde, Flushing	28 Apr 1977	3 June 1978	14 Apr 1981

Displacement, tons: 3,050 standard; 3,630 full load
Dimensions, feet (metres): 428 × 47.9 × 14.1; 20.3 (screws) *(130.5 × 14.6 × 4.3; 6.2)*
Main machinery: CODOG; 2 RR Olympus TM3B gas turbines; 50,880 hp *(37.9 MW)* sustained
2 RR Tyne RM1C gas turbines; 9,900 hp *(7.4 MW)* sustained; 2 shafts; cp props
Speed, knots: 30. **Range, miles:** 4,700 at 16 kt on Tynes
Complement: 176 (18 officers) plus 24 spare berths

Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: Raytheon Sea Sparrow Mk 29 octuple launcher ❷; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg; 24 missiles.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact ❸; 85 rds/min to 16 km *(8.6 n miles)* anti-surface; 12 km *(6.5 n miles)* anti-aircraft; weight of shell 6 kg.
1 Signaal SGE-30 Goalkeeper with General Electric 30 mm ❹; 7-barrelled; 4,200 rds/min combined to 2 km.
2 Oerlikon 20 mm.
Torpedoes: 4—324 mm US Mk 32 (2 twin) tubes ❺. Honeywell Mk 46 or Whitehead A-244S Mod 1.
Countermeasures: Decoys: 2 Loral Hycor SRBOC Mk 36 6-tubed launchers ❻; chaff distraction or centroid modes.
ESM/ECM: Ramses ❼; intercept and jammer.
Combat data systems: Signaal SEWACO II action data automation; Link 11.
Radars: Air search: Signaal LW08 ❽; D-band; range 264 km *(145 n miles)* for 2 m² target.
Surface search: Signaal Scout ❾; I-band.
Fire control: Signaal STIR ❿; I/J-band; range 140 km *(76 n miles)* for 1 m² target.
Signaal WM25 ⓫; I/J-band; range 46 km *(25 n miles)*.
Sonars: Westinghouse SQS-505; bow-mounted; active search and attack; medium frequency.

Helicopters: 2 Eurocopter AS 565 Panther ⓬.

Programmes: Contract signed on 2 April 1996 to transfer two Netherlands frigates, after refits by Royal Schelde. First one recommissioned in December 1997, second one in May 1998. Further transfers are unlikely.
Structure: Harpoon SSM and Goalkeeper CIWS has been purchased separately, as have the Scout radars. Additional air conditioning has been fitted.
Operational: Crew training takes place in the Netherlands. Both based at Jebel Ali.

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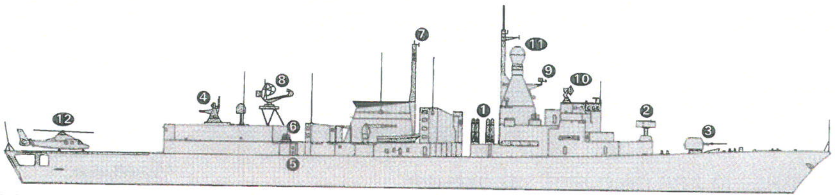


ABU DHABI
(Scale 1 : 1,200), Ian Sturton / 0121417

ABU DHABI
1/2002, A Sharma / 0534062

AL EMIRAT
2/2002. A Sharma / 0534078

CORVETTES

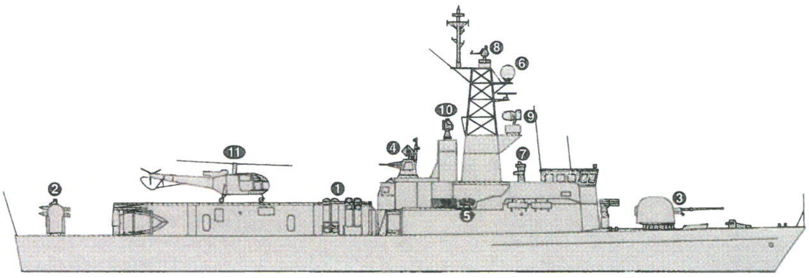
Notes: Project Fallah (LEWA 2) is for 90 m multirole corvettes.

2 MURAY JIB (MGB 62) CLASS (FSGHM)

Name	*No*	*Builders*	*Launched*	*Commissioned*
MURAY JIB	161 (ex-CM 01, ex-P 6501)	Lürssen, Bremen	Mar 1989	Nov 1990
DAS	162 (ex-CM 02, ex-P 6502)	Lürssen, Bremen	May 1989	Jan 1991

Displacement, tons: 630 full load
Dimensions, feet (metres): 206.7 × 30.5 × 8.2 *(63 × 9.3 × 2.5)*
Main machinery: 4 MTU 16V 538 TB92 diesels; 13,640 hp(m) *(10 MW)* sustained; 4 shafts
Speed, knots: 32. **Range, miles:** 4,000 at 16 kt
Complement: 43

Missiles: SSM: 8 Aerospatiale MM 40 Exocet (Block II) ❶; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: Thomson-CSF modified Crotale Navale octuple launcher ❷; radar guidance; IR homing to 13 km *(7 n miles)* at 2.4 Mach; warhead 14 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 Super Rapid ❸; 120 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
1 Signaal Goalkeeper with GE 30 mm 7-barrelled ❹; 4,200 rds/min combined to 2 km.
2—12.7 mm MGs.
Countermeasures: Decoys: 2 Dagaie launchers ❺; IR flares and chaff.
ESM/ECM: Racal Cutlass/Cygnus ❻; intercept/jammer.
Weapons control: CSSE Najir optronic director ❼.
Radars: Air/surface search: Bofors Ericsson Sea Giraffe 50HC ❽; G-band.
Navigation: Racal Decca 1226; I-band.



MURAY JIB *(Scale 1 : 600), Ian Sturton* / 0080921

Fire control: Bofors Electronic 9LV 223 ❾; J-band (for gun and SSM).
Thomson-CSF DRBV 51C ❿; J-band (for Crotale).

Helicopters: 1 Aerospatiale Alouette SA 316 ⓫.

Programmes: Ordered in late 1986. Similar vessels to Bahrain craft. Delivery in October 1991.

Structure: Lürssen design adapted for the particular conditions of the Gulf. This class has good air defence and a considerable anti-ship capability. The helicopter hangar is reached by flight deck lift.
Operational: Pennant numbers changed in 2002.

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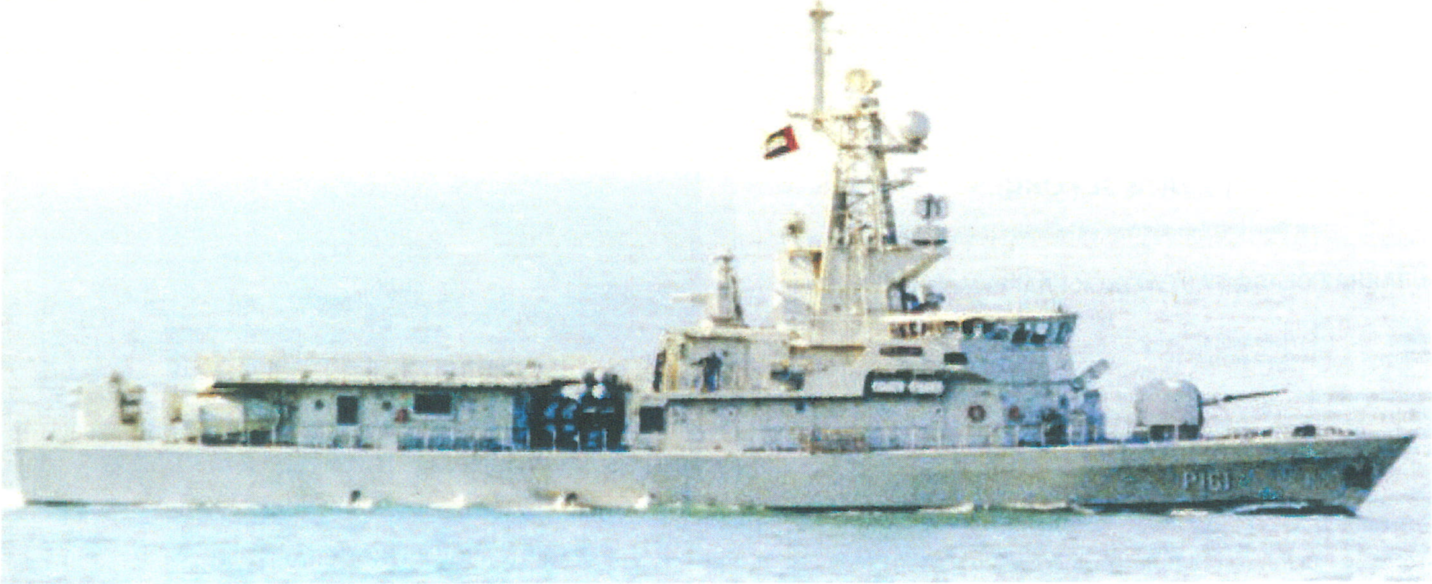
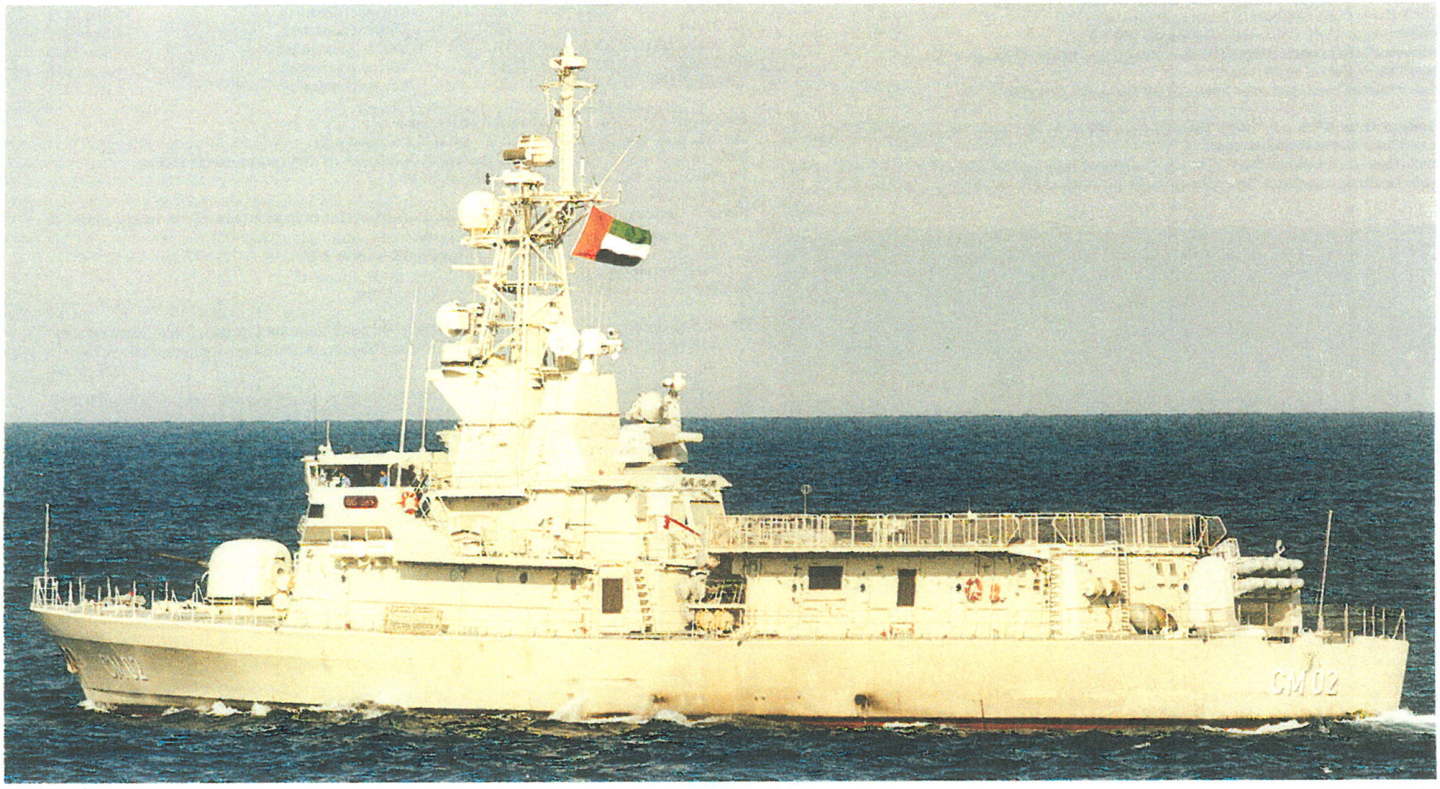


MURAY JIB *5/2003*, A Sharma* / 0567564



DAS (old number) *5/1998* / 0050325

0 + 4 (2) BAYNUNAH CLASS
(FAST ATTACK CRAFT—MISSILE) (PGGMH)

Displacement, tons: 500 tons approx
Dimensions, feet (metres): Length approximately 70 m
Main machinery: 4 MTU 12V 595 TE 90 diesels; 16,760 hp *(12.5 MW)*; 2 water-jets
Speed, knots: 32. **Range, miles:** 2,400 at 15 kt
Complement: 37
Missiles: SSM: Boeing Harpoon or Aerospatiale Matra MM 40.
SAM: Raytheon Evolved Sea Sparrow.
Guns: 1 Bofors 57 mm or Otobreda 76 mm.
Combat data systems: Alenia Marconi Systems IPN-S.
Weapons control: VIGY-EOMS optronic director.
Radars: Air/surface search: EADS TRS-3D/16ES; G-band.
Fire control: Alenia Marconi NA-25/XM.

Helicopters: 1 Eurocopter AS 565 Panther.

Comment: Project Baynunah succeeded Project LEWA 1 for the procurement of patrol boats and is a joint venture between Abu Dhabi Shipbuilding (ADSB) (Prime Contractor) and CMN of France. Contract signed 28 December 2003 for four ships with options for a further two. Based on a CMN BR67 design, final details and specifications have not been confirmed. The first of class is to be built at Cherbourg for delivery in 2008. CMN will provide materials for follow-on vessels to be built by ADSB.
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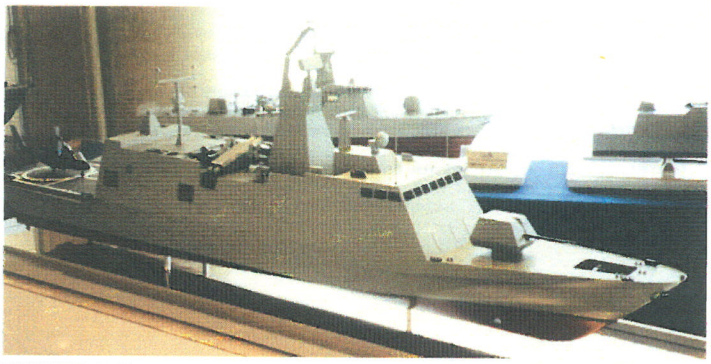
BAYNUNAH PATROL CRAFT *11/2002*, K Shaw/Jane's* / 0523378

PATROL FORCES

Notes: Three Fast Intercept Craft are reported to be in service.

2 MUBARRAZ CLASS (FAST ATTACK CRAFT—MISSILE) (PGGFM)

Name	*No*	*Builders*	*Commissioned*
MUBARRAZ	P 141 (ex-P 4401)	Lürssen, Bremen	Aug 1990
MAKASIB	P 142 (ex-P 4402)	Lürssen, Bremen	Aug 1990

Displacement, tons: 260 full load
Dimensions, feet (metres): 147.3 × 23 × 7.2 *(44.9 × 7 × 2.2)*
Main machinery: 2 MTU 20V 538 TB93 diesels; 9,370 hp(m) *(6.9 MW)* sustained; 2 shafts
Speed, knots: 40. **Range, miles:** 500 at 38 kt
Complement: 40 (5 officers)

Missiles: SSM: 4 Aerospatiale MM 40 Exocet; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
SAM: 1 Matra Sadral sextuple launcher; Mistral; IR homing to 4 km *(2.2 n miles)*; warhead 3 kg.
Guns: 1 OTO Melara 3 in *(76 mm)*/62 Super Rapid; 120 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Rheinmetall 20 mm.
Countermeasures: Decoys: 2 Dagaie launchers; IR flares and chaff.
ESM/ECM: Racal Cutlass/Cygnus; intercept/jammer.
Weapons control: CSEE Najir optronic director (for SAM).
Radars: Air/surface search: Bofors Ericsson Sea Giraffe 50HC; G-band.
Navigation: Racal Decca 1226; I-band.
Fire control: Bofors Electronic 9LV 223; J-band (for gun and SSM).

Programmes: Ordered in late 1986 from Lürssen Werft at the same time as the two Type 62 vessels. Delivered in February 1991.
Structure: This is a modified TNC 38 design, with the first export version of Matra Sadral. The radome houses the jammer. The 20 mm guns are mounted on the bridge deck aft of the mast.
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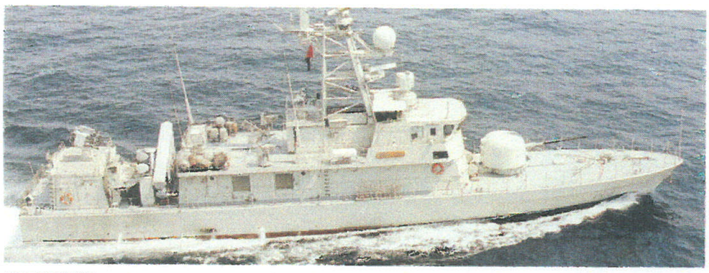
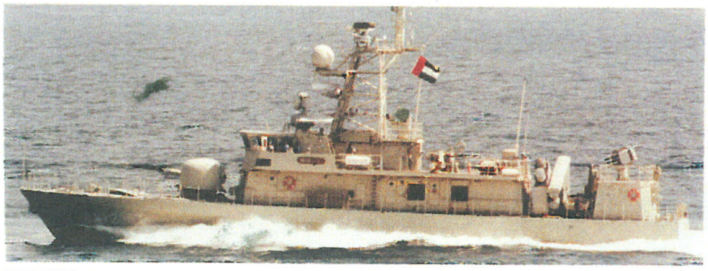

MUBARRAZ *9/2000* / 0121415


MAKASIB *2/2002, A Sharma* / 0534063

6 BAN YAS (TNC 45) CLASS
(FAST ATTACK CRAFT—MISSILE) (PGGF)

Name	*No*	*Builders*	*Commissioned*
BAN YAS	P 151 (ex-P 4501)	Lürssen Vegesack	Nov 1980
MARBAN	P 152 (ex-P 4502)	Lürssen Vegesack	Nov 1980
RODQM	P 153 (ex-P 4503)	Lürssen Vegesack	July 1981
SHAHEEN	P 154 (ex-P 4504)	Lürssen Vegesack	July 1981
SAGAR	P 155 (ex-P 4505)	Lürssen Vegesack	Sep 1981
TARIF	P 156 (ex-P 4506)	Lürssen Vegesack	Sep 1981

Displacement, tons: 260 full load
Dimensions, feet (metres): 147.3 × 23 × 8.2 *(44.9 × 7 × 2.5)*
Main machinery: 4 MTU 16V 538 TB92 diesels; 13,640 hp(m) *(10 MW)* sustained; 4 shafts
Speed, knots: 40. **Range, miles:** 500 at 38 kt
Complement: 40 (5 officers)

Missiles: SSM: 4 Aerospatiale MM 40 Exocet; inertial cruise; active radar homing to 70 km *(40 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 1 OTO Melara 3 in *(76 mm)*/62; 60 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Breda 40 mm/70 (twin); 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
2—7.62 mm MGs.
Countermeasures: Decoys: 1 CSEE trainable Dagaie; IR flares and chaff.
ESM: Racal Cutlass; intercept.
Combat data systems: CelsiusTech 9LV Mk 3E CETRIS
Weapons control: 1 CSEE Panda director for 40 mm. PEAB low-light USFA IR and TV tracker.
Radars: Surface search: Bofors Ericsson Sea Giraffe 50HC; G-band.
Navigation: Signaal Scout; I-band.
Fire control: Philips 9LV 200 Mk 2/3; J-band.

Programmes: Ordered in late 1977. First two shipped in September 1980 and four more in Summer 1981. This class was the first to be fitted with MM 40.
Modernisation: Upgrade contract for ship and propulsion systems given to Newport News. Work done by Abu Dhabi Shipbuilding Company. First pair completed in late 1998, second pair in mid-1999 and the third pair in mid-2000. Further modernisation is being undertaken under Project Tarif-45. This includes replacement of the combat data system, fire-control systems and improvement of Exocet to Block III configuration. Beginning in February 2004, two craft per year are to undergo the nine-month upgrades.
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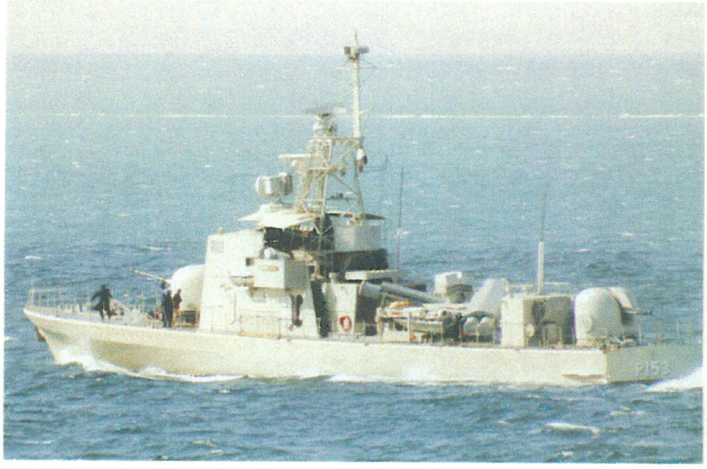
RODQM *3/2003*, A Sharma* / 0567565

6 ARDHANA CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
ARDHANA	P 3301 (ex-P 1101)	Vosper Thornycroft	24 June 1975
ZURARA	P 3302 (ex-P 1102)	Vosper Thornycroft	14 Aug 1975
MURBAN	P 3303 (ex-P 1103)	Vosper Thornycroft	16 Sep 1975
AL GHULLAN	P 3304 (ex-P 1104)	Vosper Thornycroft	16 Sep 1975
RADOOM	P 3305 (ex-P 1105)	Vosper Thornycroft	1 July 1976
GHANADHAH	P 3306 (ex-P 1106)	Vosper Thornycroft	1 July 1976

Displacement, tons: 110 standard; 175 full load
Dimensions, feet (metres): 110 × 21 × 6.6 *(33.5 × 6.4 × 2)*
Main machinery: 2 Paxman 12CM diesels; 5,000 hp *(3.73 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,800 at 14 kt
Complement: 26
Guns: 2 Oerlikon/BMARC 30 mm/75 A32 (twin); 650 rds/min to 10 km *(5.5 n miles)*; weight of shell 1 kg or 0.36 kg.
1 Oerlikon/BMARC 20 mm/80 A41A; 800 rds/min to 2 km.
2—51 mm projectors for illuminants.
Radars: Surface search: Racal Decca TM 1626; I-band.

Comment: A class of round bilge steel hull craft. Originally operated by Abu Dhabi. New pennant numbers in 1996. To be replaced by the Project Baynunah craft from approximately 2004.
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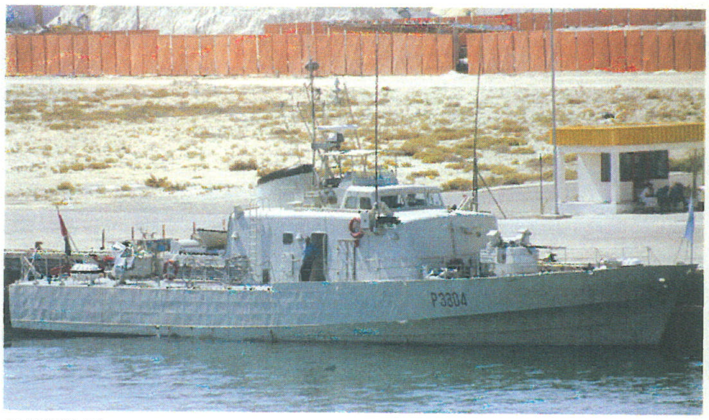
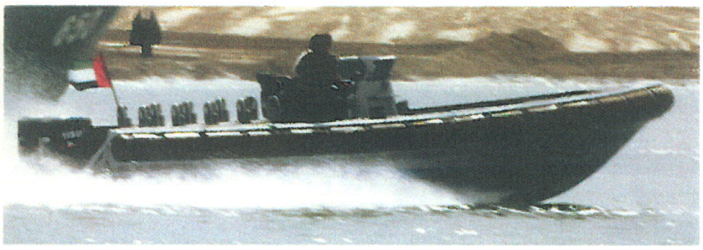

AL GHULLAN *2/1997, A Sharma* / 0567566

8 ARCTIC 28 RIBs (PBF) and 12 AL-SHAALI TYPE

Displacement, tons: 4 full load
Dimensions, feet (metres): 27.9 × 9.7 × 2 *(8.5 × 3 × 0.6)*
Main machinery: 2 outboards; 450 hp *(336 kW)*
Speed, knots: 38
Complement: 1 plus 11 troops

Comment: RIBs ordered from Halmatic, Southampton in June 1992 and delivered in mid-1993. GRP hulls. Speed given is fully laden. Used by Special Forces. The Al-Shaali type were ordered in 1994 and built in Dubai. ***VERIFIED***



ARCTIC *3/1995, H M Steele* / 0080926

SHIPBORNE AIRCRAFT

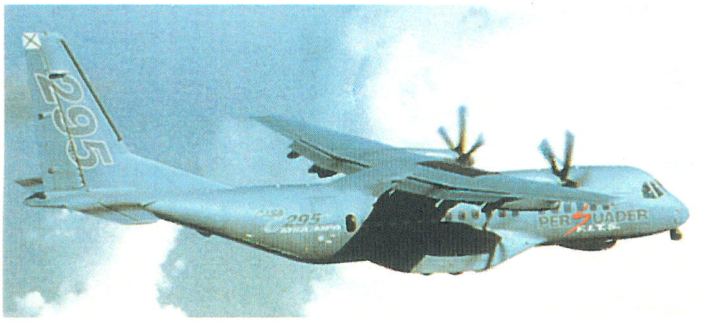
Numbers/Type: 4 Aerospatiale SA 316/319S Alouette.
Operational speed: 113 kt *(210 km/h)*.
Service ceiling: 10,500 ft *(3,200 m)*.
Range: 290 n miles *(540 km)*.
Role/Weapon systems: Reconnaissance and general purpose helicopters. Sensors: radar. Weapons: Unarmed. ***VERIFIED***

Numbers/Type: 7 Eurocopter AS 565 Panther.
Operational speed: 165 kt *(305 km/h)*.
Service ceiling: 16,700 ft *(5,100 m)*.
Range: 483 n miles *(895 km)*.
Role/Weapon systems: Ordered in March 1995 and delivered from 1998. Sensors: Thomson-CSF Agrion radar. Weapons: ASV; Aerospatiale AS 15TT ASM. ***VERIFIED***

LAND-BASED MARITIME AIRCRAFT

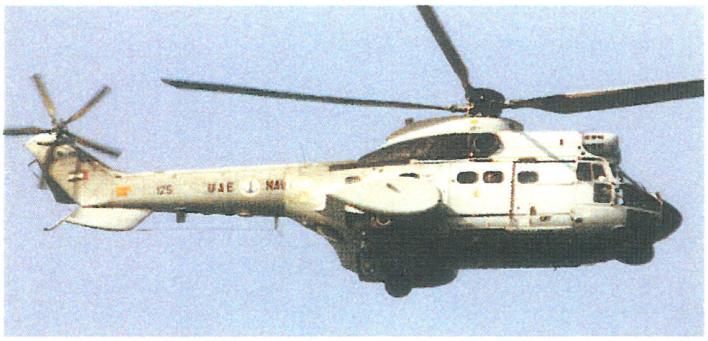
Notes: Procurement of five refurbished E-2C Hawkeye aircraft from the USA, under FMS funding arrangements, is under consideration.

Numbers/Type: 4 EADS CASA C-295M.
Operational speed: 256 kt *(474 km/h)*.
Service ceiling: 13,540 ft *(4,125 m)*.
Range: 2,250 n miles *(4,167 km)*.
Role/Weapon systems: Stretched version of CN-235M for maritime patrol and reconnaissance. Order announced in March 2001. Delivery expected to start in 2004. Fitted with EADS Fully Integrated Tactical System (FITS), sensors and weapons to be selected. ***UPDATED***



C-295M *2001, EADS CASA* / 0094291

Numbers/Type: 7 Aerospatiale AS 535 Cougar/Super Puma.
Operational speed: 150 kt *(280 km/h)*.
Service ceiling: 15,090 ft *(4,600 m)*.
Range: 335 n miles *(620 km)*.
Role/Weapon systems: Former transport helicopters. Five updated from 1995 with ASW equipment. Two used as VIP transports. Sensors: Omera ORB 30 radar; Thomson Marconi HS 312 dipping sonar. Weapons: ASV; one AM 39 Exocet ASM. ASW; A 244S torpedoes and mines. ***VERIFIED***



COUGAR *6/1994* / 0080927

Numbers/Type: 2 Pilatus Britten-Norman Maritime Defender.
Operational speed: 150 kt *(280 km/h)*.
Service ceiling: 18,900 ft *(5,760 m)*.
Range: 1,500 n miles *(2,775 km)*.
Role/Weapon systems: Coastal patrol and surveillance aircraft although seldom used in this role. Sensors: Nose-mounted search radar, underwing searchlight. Weapons: Underwing rocket and gun pods. ***VERIFIED***

AMPHIBIOUS FORCES

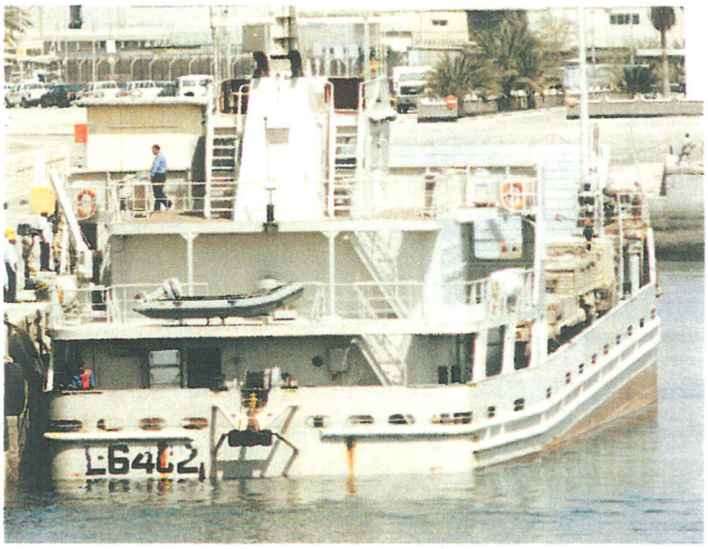
Notes: There are also four civilian LCM ships, *El Nasirah 2, Baava 1, Makasib* and *Ghagha II*, and two 'Serna' class LCUs are also civilian owned.

4 LCT

L 64 (ex-6401)	**L 65** (ex-6402)	**L 66** (ex-6403)	**L 67** (ex-6404)

Displacement, tons: 850 approx
Dimensions, feet (metres): 210 × 39.4 × 8.7 *(64.0 × 12.0 × 2.7)*
Main machinery: 2 Caterpillar diesels
Speed, knots: 12.
Guns: 2—12.7 mm MGs.

Comment: Built at Abu Dhabi Naval Base and completed in 1996-99. Details are incomplete. Pennant numbers changed in 2001. ***UPDATED***



L 65 (old number) *8/1996* / 0080928

0 + 3 LANDING CRAFT (LCT)

Displacement, tons: to be announced
Dimensions, feet (metres): 210 × 39.4 × 8.7 *(64.0 × 12.0 × 2.7)*
Main machinery: 2 Caterpillar 3508 diesels; 2 shafts
Speed, knots: 11.
Complement: 19 (plus 56 troops)
Military lift: military vehicles

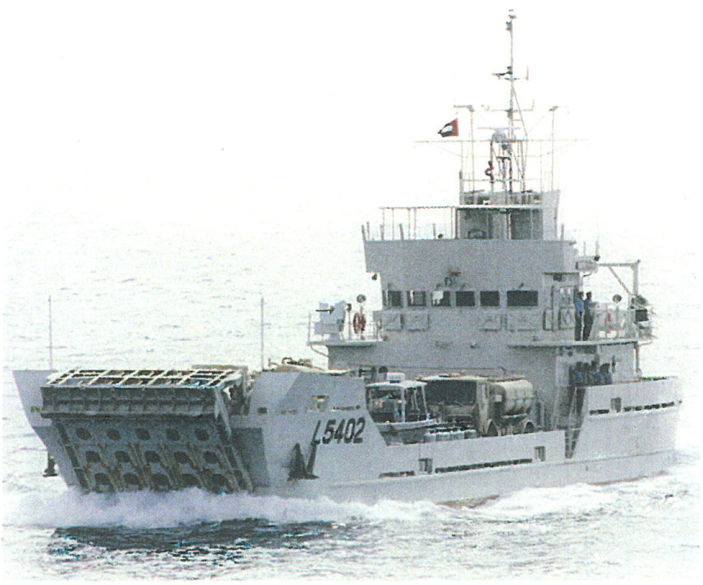
Comment: Fully designed in the UAE, the vessels were ordered from ADSB in November 2001 and laid down in early 2002 for delivery between 2003 and 2004. Details are speculative and based on those already in service. Weapons are expected to include medium calibre machine guns. ***VERIFIED***

3 AL FEYI CLASS (LCU)

AL FEYI L 51 (ex-5401)	**DAYYINAH** L 52 (ex-5402)	**JANANAH** L 53 (ex-5403)

Displacement, tons: 650 full load
Dimensions, feet (metres): 164 × 36.1 × 9.2 *(50 × 11 × 2.8)*
Main machinery: 2 diesels; 1,248 hp *(931 kW)*; 2 shafts
Speed, knots: 11. **Range, miles:** 1,800 at 11 kt
Complement: 10
Military lift: 4 vehicles
Guns: 2—12.7 mm MGs.

Comment: *Al Feyi* built by Siong Huat, Singapore; completed 4 August 1987. The other pair built by Argos Shipyard, Singapore to a similar design and completed in December 1988. Used mostly as transport ships. Pennant numbers changed in 2001. ***UPDATED***



DAYYINAH (old number) *6/1996* / 0080929

3 + 9 TRANSPORTBÅT 2000 (LCP)

Displacement, tons: 43 full load
Dimensions, feet (metres): 77.1 × 16.7 × 3.3 *(23.5 × 5.1 × 1)*
Main machinery: 2 MTU 12V 2000 diesels; 2 Kamewa FF 550 waterjets
Speed, knots: 33.
Complement: 3
Military lift: 42 troops or 10 tons
Guns: 2—12.7 mm MGs.
Radars: Navigation: Terma; I-band.

Comment: Project 'Ghannatha' is for 12 amphibious transport craft based on the Transportbåt 2000 craft in service with the Royal Swedish Navy. It is envisaged that three craft will be constructed at the Djupviks yard in Sweden while ADSB will manufacture the other nine. Details of the aluminium craft are based on those in Swedish service and have not been confirmed. Delivery is expected between 2003 and 2004.

VERIFIED

TRANSPORTBÅT (Swedish colours) *6/2000, Michael Nitz* / 0106583

AUXILIARIES

1 DIVING TENDER (YDT)

AL GAFFA D 1051

Displacement, tons: 100 full load
Dimensions, feet (metres): 103 × 22.6 × 3.6 *(31.4 × 6.9 × 1.1)*
Main machinery: 2 MTU 12V 396 TB93 diesels; 3,260 hp(m) *(2.4 MW)* sustained; 2 water-jets
Speed, knots: 26. **Range, miles:** 390 at 24 kt
Complement: 6

Comment: Ordered from Crestitalia in December 1985 for Abu Dhabi and delivered in July 1987. GRP hull. Used primarily for mine clearance but also for diving training, salvage and SAR. Fitted with a decompression chamber and diving bell. Lengthened version of Italian *Alcide Pedretti*.

UPDATED

AL GAFFA *3/1997* / 0019363

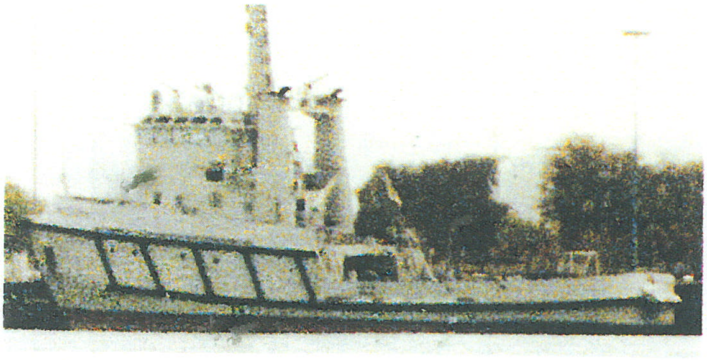
1 COASTAL TUG (YTB)

ANNAD A 3501

Displacement, tons: 795 full load
Dimensions, feet (metres): 114.8 × 32.2 × 13.8 *(35 × 9.8 × 4.2)*
Main machinery: 2 Caterpillar 3606TA diesels; 4,180 hp *(3.12 MW)* sustained; 2 shafts; cp props; bow thruster; 362 hp *(266 kW)*
Speed, knots: 14. **Range, miles:** 2,500 at 14 kt
Complement: 14 (3 officers)
Radars: Navigation: Racal Decca 2070; I-band.

Comment: Built by Dunston, Hessle, and completed in April 1989. Bollard pull, 55 tons. Equipped for SAR and is also used for logistic support.

VERIFIED



ANNAD *6/1994* / 0080930

2 HARBOUR TUGS (YTM)

TEMSAH A 51 **UGAAB** A 52

Displacement, tons: 90 full load
Dimensions, feet (metres): 54.1 × 16.4 × 5.9 *(16.5 × 5.0 × 1.8)*
Main machinery: 2 Volvo Penta TAMD-122A diesels; 760 hp *(560 kW)*; 2 shafts

Comment: Ordered from Damen shipyard, Gorinchem in 1996 and entered service in 1998. Main role to attend 'Kortenaer' class frigates. Equipped with fire-fighting platform abaft the mainmast.

VERIFIED

UGAAB *1/2002, A Sharma* / 0534119

COAST GUARD

Notes: Under control of Minister of Interior. In addition to the vessels listed below there is a number of Customs and Police launches including Barracuda craft, three Swedish Boghammar 13 m craft of the same type used by Iran and delivered in 1985, two Baglietto police launches acquired in 1988, about 10 elderly 'Dhafeer' and 'Spear' class of 12 and 9 m respectively, and two Halmatic 'Arun' class Pilot craft delivered in 1990-91; some of these launches carry light machine guns.

POLICE BARRACUDA *1/2002, A Sharma* / 0534111

2 PROTECTOR CLASS (WPB)

1101 **1102**

Displacement, tons: 180 full load
Dimensions, feet (metres): 108.3 × 22 × 6.9 *(33 × 6.7 × 2.1)*
Main machinery: 2 MTU 16V 396 TE94 diesels; 5,911 hp(m) *(4.35 MW)* sustained; 2 shafts; LIPS props
Speed, knots: 33
Complement: 14
Guns: 1 Mauser 20 mm. 2—12.7 mm MGs.
Weapons control: 1 SAGEM optronic director.
Radars: Surface search: I-band.

Comment: Ordered from FBM Marine, Cowes in 1998. Aluminium hulls. First one laid down 15 June 1998. Both delivered in late 1999. More may be built by Abu Dhabi Shipbuilders. Similar to Bahamas and Chilean naval craft.

VERIFIED

PROTECTOR 1101 *11/1999, UAE Coast Guard* / 0106675

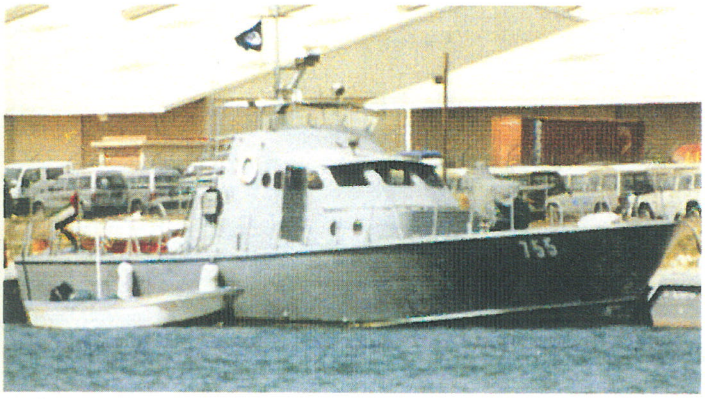
5 CAMCRAFT 77 ft (COASTAL PATROL CRAFT) (WPB)

753-757

Displacement, tons: 70 full load
Dimensions, feet (metres): 76.8 × 18 × 4.9 *(23.4 × 5.5 × 1.5)*
Main machinery: 2 GM 12V-71TA diesels; 840 hp *(627 kW)* sustained; 2 shafts
Speed, knots: 25
Complement: 8
Guns: 2 Lawrence Scott 20 mm (not always embarked).
Radars: Surface search: Racal Decca; I-band.

Comment: Completed 1975 by Camcraft, New Orleans. Not always armed.

VERIFIED



CAMCRAFT 755 *6/1997* / 0019364

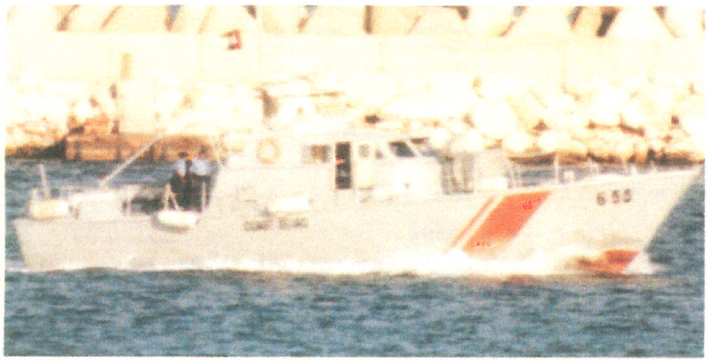
16 CAMCRAFT 65 ft (COASTAL PATROL CRAFT) (WPB)

650-665

Displacement, tons: 50 full load
Dimensions, feet (metres): 65 × 18 × 5 *(19.8 × 5.5 × 1.5)*
Main machinery: 2 MTU 6V 396 TB93 diesels; 1,630 hp(m) *(1.2 MW)* sustained; 2 shafts (in 14)
2 Detroit 8V-92TA diesels; 700 hp *(522 kW)* sustained; 2 shafts (in 2)
Speed, knots: 25
Complement: 8
Guns: 1 Oerlikon 20 mm GAM-BO1.
Radars: Surface search: Racal Decca; I-band.

Comment: Built by Camcraft, New Orleans and delivered by September 1978.

VERIFIED



CAMCRAFT 655 *12/2001, A Sharma* / 0534118

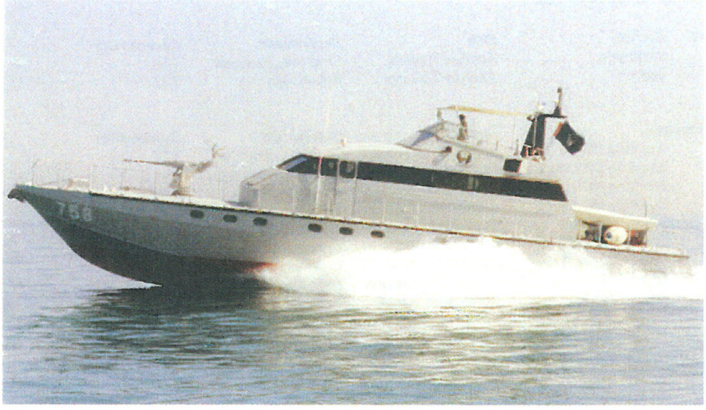
6 BAGLIETTO GC 23 TYPE (COASTAL PATROL CRAFT) (WPBF)

758-763

Displacement, tons: 50.7 full load
Dimensions, feet (metres): 78.7 × 18 × 3 *(24 × 5.5 × 0.9)*
Main machinery: 2 MTU 12V 396 TB93 diesels; 3,260 hp(m) *(2.4 MW)* sustained; 2 Kamewa water-jets
Speed, knots: 43. **Range, miles:** 700 at 20 kt
Complement: 9
Guns: 1 Oerlikon 20 mm. 2—7.62 mm MGs.
Radars: Surface search: I-band.

Comment: Built by Baglietto, Varazze. First two completed in March and May 1986, second pair in July 1987 and two more in 1988. All were delivered to UAE Coast Guard in Dubai.

VERIFIED



BAGLIETTO 758 *1987, UAE Coast Guard* / 0080934

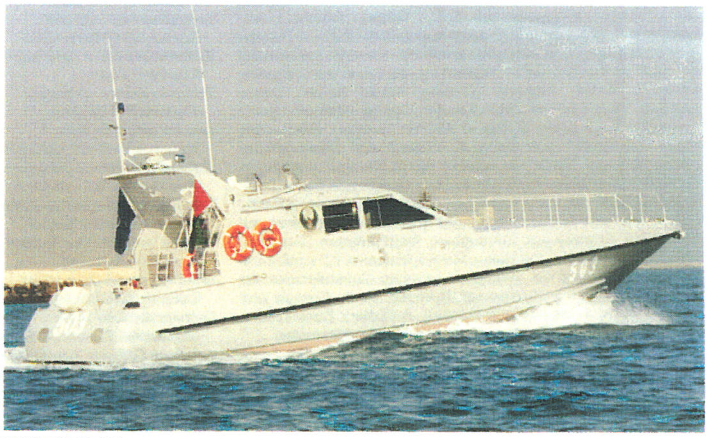
3 BAGLIETTO 59 ft (COASTAL PATROL CRAFT) (WPBF)

501-503

Displacement, tons: 22 full load
Dimensions, feet (metres): 59.4 × 13.9 × 2.3 *(18.1 × 4.3 × 0.7)*
Main machinery: 2 MTU 12V 183 TE92 diesels; 2 shafts
Speed, knots: 40
Complement: 6
Guns: 2—7.62 mm MGs.
Radars: Surface search: Racal Decca; I-band.

Comment: Ordered in 1992 and delivered in late 1993.

VERIFIED



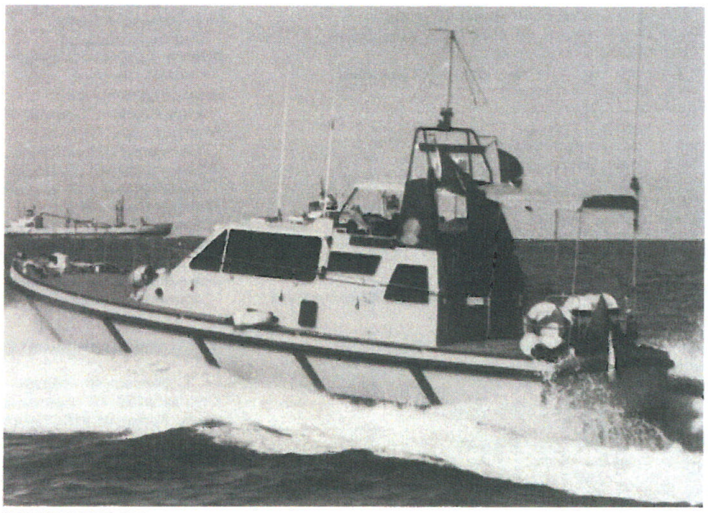
BAGLIETTO 503 *10/1993, UAE Coast Guard* / 0080935

6 WATERCRAFT 45 ft (COASTAL PATROL CRAFT) (PB)

Displacement, tons: 25 full load
Dimensions, feet (metres): 45 × 14.1 × 4.6 *(13.7 × 4.3 × 1.4)*
Main machinery: 2 MAN D2542 diesels; 1,300 hp(m) *(956 kW)*; 2 shafts
Speed, knots: 26. **Range, miles:** 380 at 18 kt
Complement: 5
Guns: Mounts for 2—7.62 mm MGs.
Radars: Surface search: Racal Decca; I-band.

Comment: Ordered from Watercraft, UK in February 1982. Delivery in early 1983. Four deleted. Two similar craft built by Halmatic were delivered to the Dubai Port Authority in October 1997.

VERIFIED

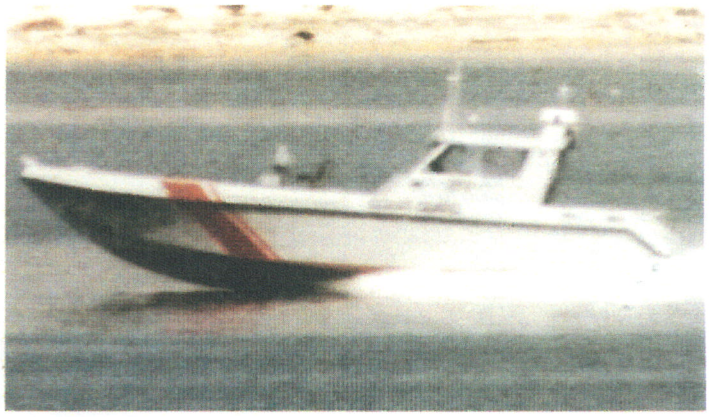


WATERCRAFT 45 ft *1984, UAE Coast Guard*

35 HARBOUR PATROL CRAFT (PB/YDT)

Comment: The latest are 11 Shark 33 built by Shaali Marine, Dubai and delivered in 1993-94. The remainder are a mixture of Barracuda 30 ft and FPB 22 ft classes. All are powered by twin outboard engines and most carry a 7.62 mm MG and have a Norden radar. There are also two Rotork craft used as diving tenders. Customs boats are operated separately by each of the UAE states. Some have been built for Kuwait.

VERIFIED



BARRACUDA 271 *12/2001, A Sharma* / 0534117

United Kingdom

Country Overview

The United Kingdom of Great Britain and Northern Ireland is situated in north-western Europe. It has a coastline of 6,700 n miles with the English Channel, the North Sea, the Irish Sea and the Atlantic Ocean. With an area of 93,341 square miles, it comprises the island of Great Britain (England, Scotland and Wales) and the six counties of Ulster that remained a constituent part of UK after Irish independence in 1922. It also includes the Isle of Wight, Anglesey, the Scilly, Orkney, Shetland, and Hebridean archipelagos and numerous smaller islands. The Isle of Man and the Channel Islands are direct dependencies but are not part of the UK. Other dependent territories are: Anguilla; Bermuda; British Antarctic Territory; British Indian Ocean Territory (BIOT); British Virgin Islands; Cayman Islands; Cyprus Sovereign Base Areas; Falkland Islands; Gibraltar; Montserrat; Ducie, Henderson and Oeno; St Helena and Dependencies (Ascension and Tristan da Cunha); South Georgia and South Sandwich Islands and the Turks and Caicos Islands. London is the capital, largest city and a major port. Major oil ports are at Forth, Sullom Voe and Milford Haven and non-oil ports at Tees and Hartlepool, Grimsby and Immingham, Southampton, Liverpool, Felixstowe, Medway, and Dover. Territorial seas of 12 n miles are claimed around the UK mainland and many dependencies. An EEZ (200 n miles) is claimed for Bermuda, South Georgia and South Sandwich Islands and Pitcairn. A Fishery Zone (200 n miles) is claimed for the mainland and some dependencies.

Headquarters Appointments

Chief of the Naval Staff and First Sea Lord:
Admiral Sir Alan West, KCB, DSC
Commander-in-Chief, Fleet:
Admiral Sir Jonathon Band, KCB
Chief of Naval Personnel and Commander-in-Chief, Naval Home Command:
Vice Admiral J M Burnell-Nugent, CBE
Deputy Chief Executive, Warship Support Agency:
Rear Admiral J Reeve
Controller of the Navy:
Rear Admiral R F Cheadle
Assistant Chief of the Naval Staff:
Rear Admiral A J Johns

Flag Officers, Operational and National Commanders

Chief of Joint Operations:
Lieutenant General Sir John Reith, KCB, CB, CBE
Deputy Commander-in-Chief, Fleet:
Vice Admiral Sir Mark Stanhope, KCB, OBE
Chief of Staff (Warfare) (Rear Admiral Surface Ships):
Rear Admiral T P McClement, OBE
Commander, Operations (Rear Admiral Submarines):
Rear Admiral N S R Kilgour
Rear Admiral, Fleet Air Arm:
Rear Admiral A J Johns
Commander, UK Maritime Forces:
Rear Admiral D G Snelson
Chief of Staff (Support):
Rear Admiral T C Chittenden
Flag Officer, Sea Training:
Rear Admiral J C Rapp
Commander, UK Amphibious Forces:
Major General J B Dutton, CBE
Flag Officer, Scotland, Northern England and Northern Ireland:
Rear Admiral N H L Harris, MBE
Commander, British Forces Cyprus:
Air Vice Marshal T W Rimmer, CBE
Commander United Kingdom Task Group:
Commodore A J Rix
Commander Amphibious Task Group:
Commodore C J Parry
Commander, British Forces Gibraltar:
Commodore R J Clapp
Commander, British Forces Falkland Islands:
Brigadier J H Gordon, MBE
Commodore Royal Fleet Auxiliaries:
Commodore R C Thornton
Commodore Portsmouth Flotilla:
Commodore R C Twitchen
Commodore Devonport Flotilla:
Commodore J R Fanshawe
Captain Faslane Flotilla:
Captain J A Boyd

Diplomatic Representation

Naval Attaché in Ankara:
Wing Commander J Gillan, RAF
Naval Attaché in Athens:
Captain J R Wills
Naval Attaché in Berlin:
Captain S R Gosden
Naval Attaché in Brasilia:
Captain S J Timms, OBE
Defence Adviser in Bridgetown:
Captain S Ramm
Defence Adviser in Brunei:
Captain P H Watson
Naval Attaché in Cairo:
Commander P W Holihead
Defence Adviser in Canberra:
Commodore G J Wiltshire
Defence Attaché in Copenhagen:
Commander R P B Ayers
Naval Attaché in The Hague:
Captain A R Davies
Naval Adviser in Islamabad:
Colonel M W Bibbey RM
Defence Attaché in Kiev:
Captain R E Drewitt, MBE
Assistant Defence Adviser in Kuala Lumpur:
Lieutenant Commander A Joyner
Defence Attaché in Lisbon:
Commander R M Simmonds
Naval Attaché in Madrid:
Captain N Dedman
Naval Attaché in Manama:
Commander N P Smith
Defence Attaché in Manila:
Colonel M K Strech
Naval Attaché in Moscow:
Captain J Holloway
Naval Adviser in Ottawa:
Group Captain T Brewer
Naval Attaché in Paris:
Captain D Lombard
Naval Attaché in Peking:
Group Captain K J Parkes
Naval Adviser in Pretoria:
Wing Commander T A Harper, RAF
Naval Attaché in Riyadh:
Commander R R D'E Head
Naval Attaché in Rome:
Captain J H Hollidge
Defence Attaché in Santiago:
Colonel I Campbell
Naval Attaché in Seoul:
Group Captain C Greaves, OBE
Naval Adviser in Singapore:
Commander B Boxall-Hunt
Defence Attaché in Stockholm:
Wing Commander P M Leadbetter, MVO, RAF
Naval Attaché in Tokyo:
Captain S Chelton
Naval Attaché in Warsaw:
Lieutenant Colonel I F Watts
Naval Attaché in Washington:
Commodore C J Gass

Royal Marines Operational Units

HQ 3 Commando Brigade RM; 40 Commando RM; 42 Commando RM; 45 Commando Group (RM/Army); Commando Logistic Regiment RM (RN/RM/Army); 3 Commando Brigade Command Support Group, EW Troop RM, Tactical Air Command Posts RM (3 regular, 1 reserve); 539 Assault Squadron RM (hovercraft, landing craft and raiding craft); Brigade Patrol Troop (reconnaissance); Special Boat Service RM; Fleet Royal Marines Protection Group (FRMPG); T Company RMR; 29 Commando Regiment RA (Army); 59 Independent Commando Squadron RE (Army); 20 Commando Battery RA; 131 Independent Squadron RE (Volunteers).

Prefix to Ships' Names

HMS (Her Majesty's Ship)

Bases

Northwood: C-in-C Fleet; CJO; Commander Operations
Portsmouth: C-in-C Navhome; DC-in-C Fleet; COS Warfare; COS Support; COMUKMARFOR; COMUKAMPHIBFOR; Com Portsmouth Flotilla; COMUKTG
Devonport: FOST; Com Devonport Flotilla; COMATG
Faslane: FOSNNI; Captain Faslane Flotilla

Personnel

2004:

(a)	Regulars:	RN 34,167 (7,036 officers) RM 7,250 (757 officers)
(b)	Volunteer Reserves:	RN 3,040 (1,064 officers) RM 801 (77 officers)

Fleet Disposition

Portsmouth: 3 CV; 11 Type 42 DDG, 8 Type 23 FFG, 1st MCM Squadron; 2nd MCM Squadron; Fishery Protection Squadron; Antarctic Patrol Ship; 1st Patrol Boat Squadron
Devonport: 1 LPH; 2 LPD; 4 Type 22 FFG; 8 Type 23 FFG; 7 Trafalgar Class SSN; Surveying Squadron
Faslane: 4 SSBN; 4 Swiftsure Class SSN; 3rd MCM Squadron; Fleet Diving Squadron

Strength of the Fleet

Type	*Active (Reserve)*	*Building (Projected)*
SSBNs	4	–
Submarines-Attack	11	3 (3)
Aircraft Carriers	2 (1)	(2)
Destroyers	11	6 (6)
Frigates	20	–
Assault Ships (LPD)	2	–
Helicopter Carriers (LPH)	1	–
LSLs (RFA)	4	4
Offshore Patrol Vessels	5	–
Patrol/Training Craft	18	–
Minehunters	22	–
Repair/Maintenance Ships (RFA)	1	–
Survey Ships	5	–
Antarctic Patrol Ships	1	–
Large Fleet Tankers (RFA)	2	–
Support Tankers (RFA)	4	–
Small Fleet Tankers (RFA)	3	–
Aviation Training Ships (RFA)	1	–
Fleet Replenishment Ships (RFA)	4	–
Transport Ro-Ro (RFR)	6	1

DELETIONS

Submarines

2003 *Splendid*

Destroyers

2001 *Birmingham*

Frigates

2001 *Coventry* (to Romania)
2002 *Sheffield* (to Chile)
2003 *London* (to Romania)

Amphibious Forces

2002 *Fearless*
2004 *Sir Geraint*

Mine Warfare Forces

2001 *Berkeley* (to Greece), *Cromer* (static training ship)

Survey Vessels

2001 *Herald, Bulldog*
2002 *Beagle*

Patrol Forces

2002 *Alderney, Shetland* (both to Bangladesh)
2003 *Anglesey, Guernsey* (both to Bangladesh)
2004 *Lindisfarne* (to Bangladesh)

Auxiliaries

2001 *Olwen, Olna, Torrent, Salmaster, Fiona, Falconet, Petard, Cockchafer, Margherita*
2002 *Bee, Mastiff, Collie, Milford*
2003 *Dalmatian, Joan, Norah, Seagull*

Fleet Air Arm Squadrons (see *Shipborne Aircraft* section) on 1 January 2004
FA = Fighter Attack. HMA = Helicopter Maritime Attack.

F/W	*Aircraft*	*Role*	*Deployment*	*Squadron no*
7	Sea Harrier	FA 2	*Invincible*	801
13	Sea Harrier	(FA. Mk 2/T8) Aircrew Training	Yeovilton, *Heron*	899
9	Jetstream	Aircrew Training	Culdrose, *Seahawk*	750
5	Grob	Aircrew Training	Roborough	727

Helicopters		*Role*	*Deployment*	*Squadron no*
2	Merlin HM Mk 1	OEU	Culdrose, *Seahawk*	700M
6	Merlin HM Mk 1	ASW/ASUW	*Ark Royal*	814
6	Merlin HM Mk 1	ASW/ASUW	*Invincible*	820
6	Merlin HM Mk 1	ASW/ASUW	Culdrose, *Seahawk*	824
8	Merlin HM Mk 1	ASW/ASUW	Culdrose, *Seahawk*	829
13	Sea King ASAC Mk 7	AEW	Culdrose, *Seahawk*	849 HQ
	Sea King ASAC Mk 7	AEW	*Ark Royal*	849 A flight
	Sea King ASAC Mk 7	AEW	*Invincible*	849 B flight
3	Sea King HU Mk 5	SAR	Prestwick, *Gannet*	Prestwick, SAR flight
7	Sea King HU Mk 5	SAR/Training	Culdrose, *Seahawk*	771
4	Sea King HAS Mk 6	SAR/Utility	Culdrose, *Seahawk*	771
10	Sea King HC 4	Commando Assault	Yeovilton, *Heron*	845
10	Sea King HC 4	Commando Assault	Yeovilton, *Heron*	846
9	Sea King HC 4	Commando Assault	Yeovilton, *Heron*	848
35	Lynx HMA. Mk 3/8	ASUW/ASW	Yeovilton, *Heron*	815
13	Lynx HAS. Mk 3/8	Aircrew Training	Yeovilton, *Heron*	702
6	Lynx Mk 7	Commando Support	Yeovilton, *Heron*	847 B
6	Gazelle AH-1	Commando Recce	Yeovilton, *Heron*	847 A

Notes: (1) Joint Force Harrier (JFH) formed on 1 April 2000. Both RN Sea Harriers and RAF GR.7/9s form 3 Group whose Headquarters are at RAF High Wycombe. Following the withdrawal of the Sea Harrier from service in 2006, JFH will continue to be complemented by RN and RAF pilots. (2) 800 Squadron disbanded on 31 March 2004 and will rededicate in April 2006 with GR9A at RAF Cottesmore. (3) 801 Squadron is to disband on 31 March 2006 and rededicate in October 2006 with GR9A at RAF Cottesmore. (4) 899 Squadron is to disband in April 2005 and join Joint OCU 20 Squadron at RAF Wittering. (5) The Joint Helicopter Command (JHC) became operational on 1 April 2000 and brought all battlefield helicopters from all three services under one command at HQ Land, Wilton. Total helicopter assets number some 450. The command includes the Commando Helicopter Force (CHF), a group of four RN/RM squadrons, based at Yeovilton, which specialises in amphibious warfare. (6) 829 Squadron to form in September 2004. Parent squadron for Type 23 frigate ships' flights. (7) Mirach 100/5 subsonic drones are operated by 792 Squadron at Culdrose.

PENNANT LIST

Notes: Numbers are not displayed on Submarines.

Submarines

Ballistic Missile Submarines

S 28	Vanguard
S 29	Victorious
S 30	Vigilant
S 31	Vengeance

Attack Submarines

S 20	Astute (bldg)
S 21	Artful (bldg)
S 22	Ambush (bldg)
S 87	Turbulent
S 88	Tireless
S 90	Torbay
S 91	Trenchant
S 92	Talent
S 93	Triumph
S 104	Sceptre
S 105	Spartan
S 107	Trafalgar
S 108	Sovereign
S 109	Superb

Aircraft Carriers

R 05	Invincible
R 06	Illustrious
R 07	Ark Royal

Destroyers

D 32	Daring (bldg)
D 33	Dauntless (bldg)
D 34	Diamond (bldg)
D 87	Newcastle
D 88	Glasgow
D 89	Exeter
D 90	Southampton
D 91	Nottingham
D 92	Liverpool
D 95	Manchester
D 96	Gloucester
D 97	Edinburgh
D 98	York
D 108	Cardiff

Frigates

F 78	Kent
F 79	Portland
F 80	Grafton
F 81	Sutherland
F 82	Somerset
F 83	St Albans
F 85	Cumberland
F 86	Campbeltown
F 87	Chatham
F 99	Cornwall
F 229	Lancaster
F 230	Norfolk
F 231	Argyll
F 233	Marlborough
F 234	Iron Duke
F 235	Monmouth
F 236	Montrose
F 237	Westminster
F 238	Northumberland
F 239	Richmond

Amphibious Warfare Forces

L 12	Ocean
L 14	Albion (bldg)
L 15	Bulwark (bldg)
L 105	Arromanches
L 107	Andalsnes
L 109	Akyab
L 110	Aachen
L 111	Arezzo
L 113	Audemer
L 3004	Sir Bedivere
L 3005	Sir Galahad
L 3006	Largs Bay (bldg)
L 3007	Lyme Bay (bldg)
L 3008	Mounts Bay (bldg)
L 3009	Cardigan Bay (bldg)
L 3036	Sir Percivale
L 3505	Sir Tristram

Mine Warfare Forces

M 29	Brecon
M 30	Ledbury
M 31	Cattistock
M 32	Cottesmore
M 33	Brocklesby
M 34	Middleton
M 35	Dulverton
M 37	Chiddingfold
M 38	Atherstone
M 39	Hurworth
M 41	Quorn
M 101	Sandown
M 102	Inverness
M 104	Walney
M 105	Bridport
M 106	Penzance
M 107	Pembroke
M 108	Grimsby
M 109	Bangor
M 110	Ramsey
M 111	Blyth
M 112	Shoreham

Patrol Forces

P 163	Express
P 164	Explorer
P 165	Example
P 167	Exploit
P 258	Leeds Castle
P 264	Archer
P 265	Dumbarton Castle
P 270	Biter
P 272	Smiter
P 273	Pursuer
P 274	Tracker
P 275	Raider
P 279	Blazer
P 280	Dasher
P 281	Tyne
P 282	Severn
P 283	Mersey (bldg)
P 284	Scimitar
P 285	Sabre
P 291	Puncher
P 292	Charger
P 293	Ranger
P 294	Trumpeter

Survey Ships

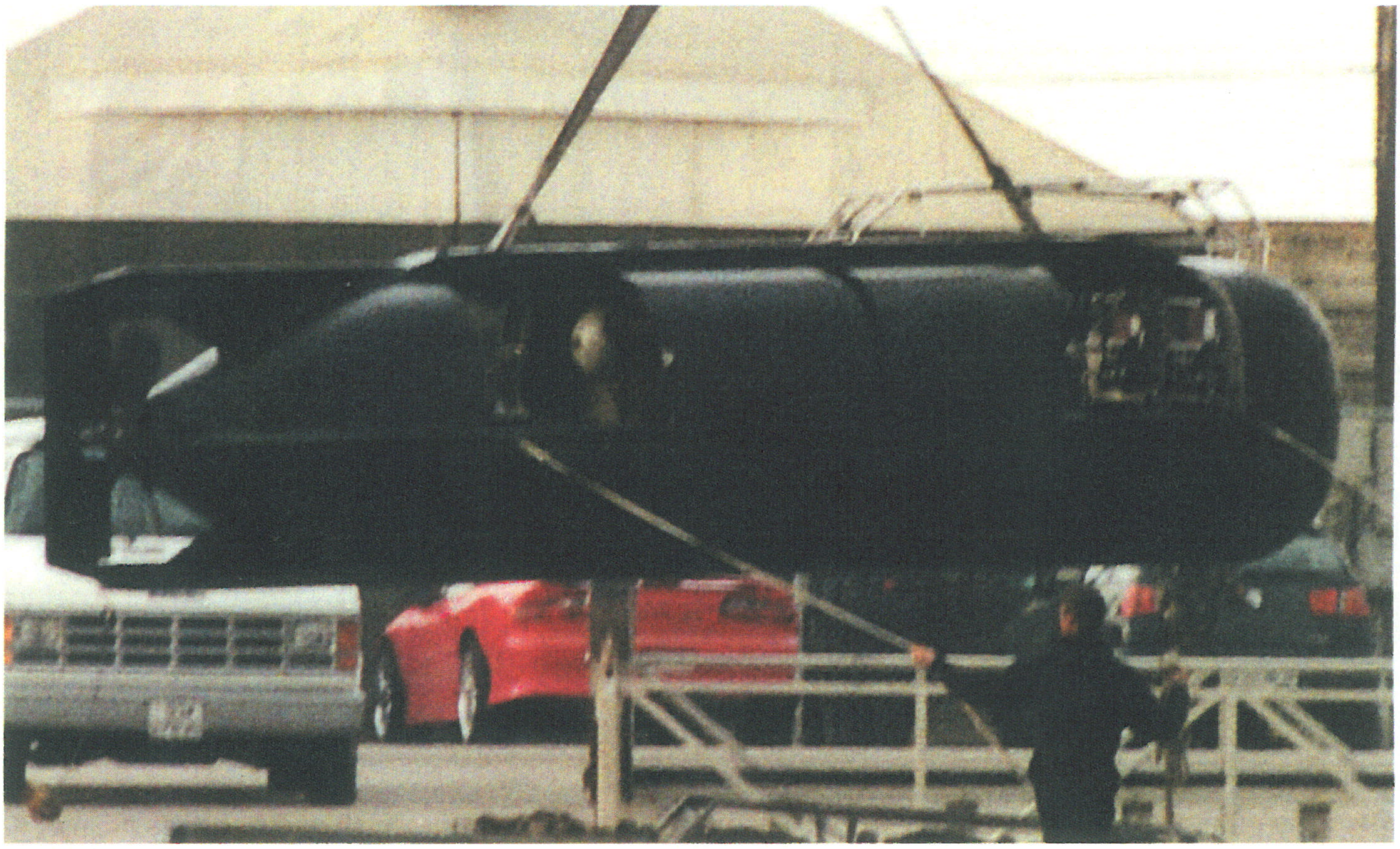
H 86	Gleaner
H 87	Echo
H 88	Enterprise (bldg)
H 130	Roebuck
H 131	Scott

Auxiliaries

A 72	Cameron
A 81	Brambleleaf
A 83	Melton
A 84	Menai
A 87	Meon
A 96	Sea Crusader
A 98	Sea Centurion
A 109	Bayleaf
A 110	Orangeleaf
A 111	Oakleaf
A 132	Diligence
A 135	Argus
A 140	Tornado
A 142	Tormentor
A 147	Frances
A 149	Florence
A 150	Genevieve
A 170	Kitty
A 171	Endurance
A 172	Lesley
A 178	Husky
A 182	Saluki
A 185	Salmoor
A 187	Salmaid
A 189	Setter
A 191	Bovisand
A 192	Cawsand
A 198	Helen
A 199	Myrtle
A 201	Spaniel
A 221	Forceful
A 222	Nimble
A 223	Powerful
A 224	Adept
A 225	Bustler
A 226	Capable
A 227	Careful
A 228	Faithful
A 229	Colonel Templer
A 231	Dexterous
A 232	Adamant
A 250	Sheepdog
A 253	Ladybird
A 269	Grey Rover
A 271	Gold Rover
A 273	Black Rover
A 280	Newhaven
A 281	Nutbourne
A 282	Netley
A 283	Oban
A 284	Oronsay
A 285	Omagh
A 286	Padstow
A 308	Ilchester
A 309	Instow
A 344	Impulse
A 345	Impetus
A 367	Newton
A 368	Warden
A 378	Kinterbury
A 385	Fort Rosalie
A 386	Fort Austin
A 387	Fort Victoria
A 388	Fort George
A 389	Wave Knight
A 390	Wave Ruler
Y 21	Oilpress
Y 32	Moorhen
Y 33	Moorfowl

SUBMARINES

Notes: Three 6.7 m US-made Mk VIII Mod 1 Swimmer Delivery Vehicles were acquired in 1999. Battery-powered, they can transport six combat swimmers and have a radius of 67 km *(36 n miles)*.



SDV Mk VIII

1/2002, M Declerck / 0132551

Strategic Missile Submarines (SSBN)

Notes: Decisions on whether to replace the Trident nuclear deterrent are expected in about 2008.

4 VANGUARD CLASS (SSBN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
VANGUARD	S 28	Vickers Shipbuilding & Engineering, Barrow-in-Furness	3 Sep 1986	4 Mar 1992	14 Aug 1993
VICTORIOUS	S 29	Vickers Shipbuilding & Engineering, Barrow-in-Furness	3 Dec 1987	29 Sep 1993	7 Jan 1995
VIGILANT	S 30	Vickers Shipbuilding & Engineering, Barrow-in-Furness	16 Feb 1991	14 Oct 1995	2 Nov 1996
VENGEANCE	S 31	Vickers Shipbuilding & Engineering, Barrow-in-Furness	1 Feb 1993	19 Sep 1998	27 Nov 1999

Displacement, tons: 15,900 dived
Dimensions, feet (metres): 491.8 × 42 × 39.4 *(149.9 × 12.8 × 12)*
Main machinery: Nuclear; 1 RR PWR 2; 2 GEC turbines; 27,500 hp *(20.5 MW)*; 1 shaft; pump jet propulsor; 2 auxiliary retractable propulsion motors; 2 WH Allen turbo generators; 6 MW; 2 Paxman diesel alternators; 2,700 hp *(2 MW)*
Speed, knots: 25 dived
Complement: 135 (14 officers)

Missiles: SLBM: 16 Lockheed Trident 2 (D5) 3-stage solid fuel rocket; stellar inertial guidance to 12,000 km *(6,500 n miles)*; thermonuclear warhead of up to 8 MIRV of 100-120 kT; cep 90 m. The D5 can carry up to 12 MIRV but under plans announced in November 1993 each submarine carried a maximum of 96 warheads (of UK manufacture). This reduced to 48 in 1999. Substrategic low yield nuclear warheads introduced in 1996.
Torpedoes: 4—21 in *(533 mm)* tubes. Marconi Spearfish; dual purpose; wire-guided; active/passive homing to 26 km *(14 n miles)* at 65 kt; or 31.5 km *(17 n miles)* at 50 kt; attack speed 55 kt; warhead 300 kg directed charge.
Countermeasures: Decoys: 2 SSE Mk 10 launchers for Type 2066 and 2071 decoys.
ESM: Racal UAP 3; intercept.

Combat data systems: BAE Systems SMCS.
Weapons control: BAE Systems SMCS.
Radars: Navigation: Kelvin Hughes Type 1007; I-band.
Sonars: TMSL Type 2054 composite multifrequency sonar suite includes Marconi/Ferranti Type 2046 towed array, Type 2043 hull-mounted active/passive search and Type 2082 passive intercept and ranging.

Programmes: On 15 July 1980 the decision was made to buy the US Trident I (C4) weapon system. On 11 March 1982 it was announced that the government had opted for the improved Trident II weapon system, with the D5 missile, to be deployed in a force of four submarines, in the mid-1990s. *Vanguard* ordered 30 April 1986; *Victorious* 6 October 1987; *Vigilant* 13 November 1990 and *Vengeance* 7 July 1992.
Structure: A new reactor core, Core H, has been fitted to *Vanguard* and is to be installed in the other three boats at their Long Overhaul Period (LOP(R)). No further reactor fuelling will be required during their service lives. The outer surface of the submarine is covered with conformal anechoic noise reduction coatings. The limits placed on warhead numbers leaves spare capacity within the Trident system. This capacity is used for a non-strategic warhead variant which has been available since 1996. Fitted with Pilkington Optronics CK 51 search and CH 91 attack periscopes.

Operational: Three successful submerged launched firings of the D5 missile from USS *Tennessee* in December 1989 and the US missile was first deployed operationally in March 1990. *Vanguard* started sea trials in October 1992; the first UK missile firing was on 26 May 1994 and the first operational patrol in early 1995. At least one SSBN has been at immediate readiness to fire ballistic missiles since 1969, but as a result of the Strategic Defence Review in 1998, readiness to fire has been relaxed 'to days rather than minutes'. Plans to phase out the two crew system have been cancelled. Submarines on patrol can be given secondary tasks without compromising security. *Vanguard* underwent LOP(R) at Devonport February 2002 to June 2004. *Victorious* to undergo LOP(R) from June 2004 to 2006. Based at Faslane.
Opinion: The intention not to use the full capacity of the Trident system, in the present international climate, has allowed the development of a number of sub-strategic options, while preserving the capability to increase the strategic weapon load at some time in the future. The UK Government has said it has no plans to deploy conventional warheads on Trident. Neither are there any known plans to modify some launch-tubes to accommodate cruise missiles.

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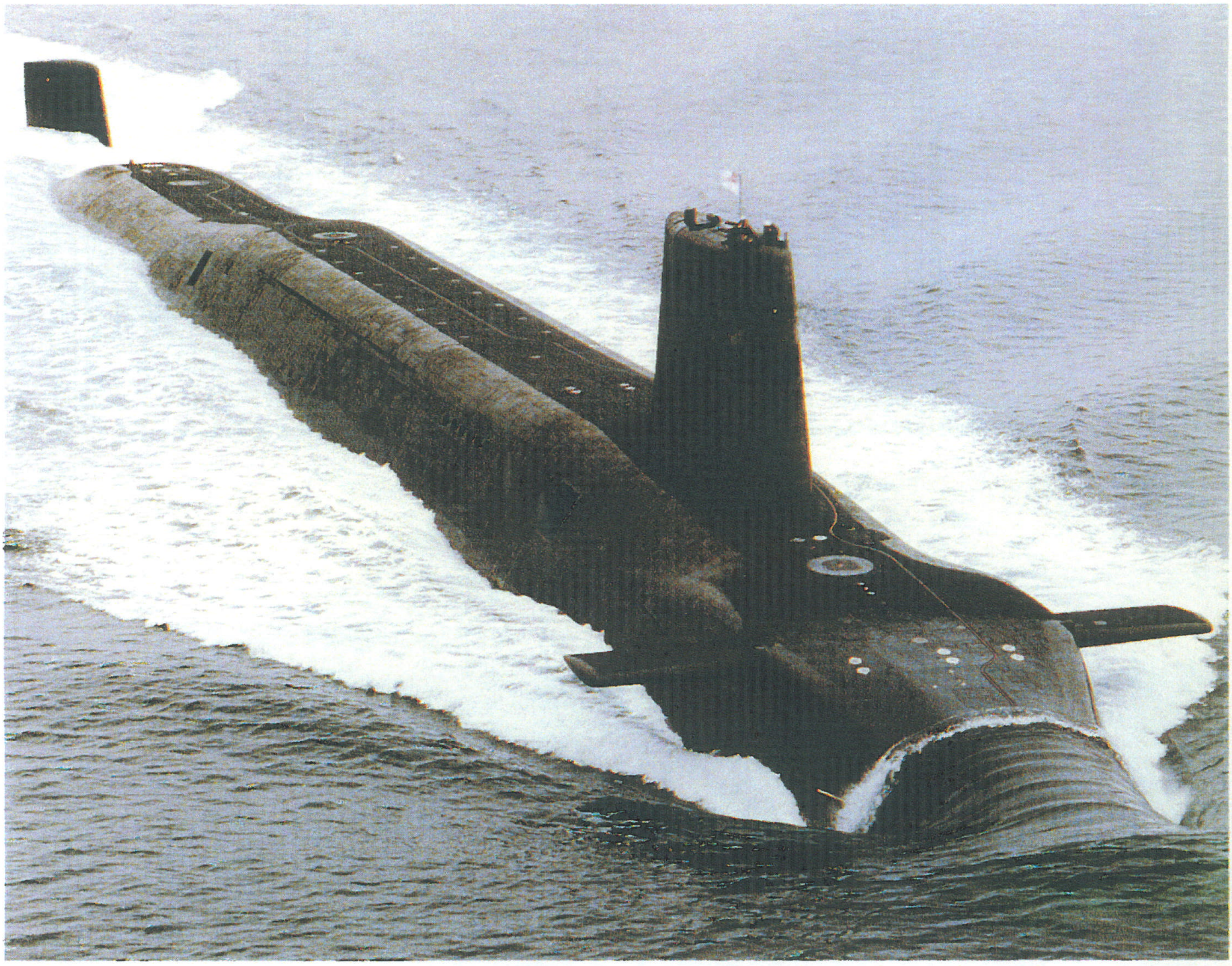
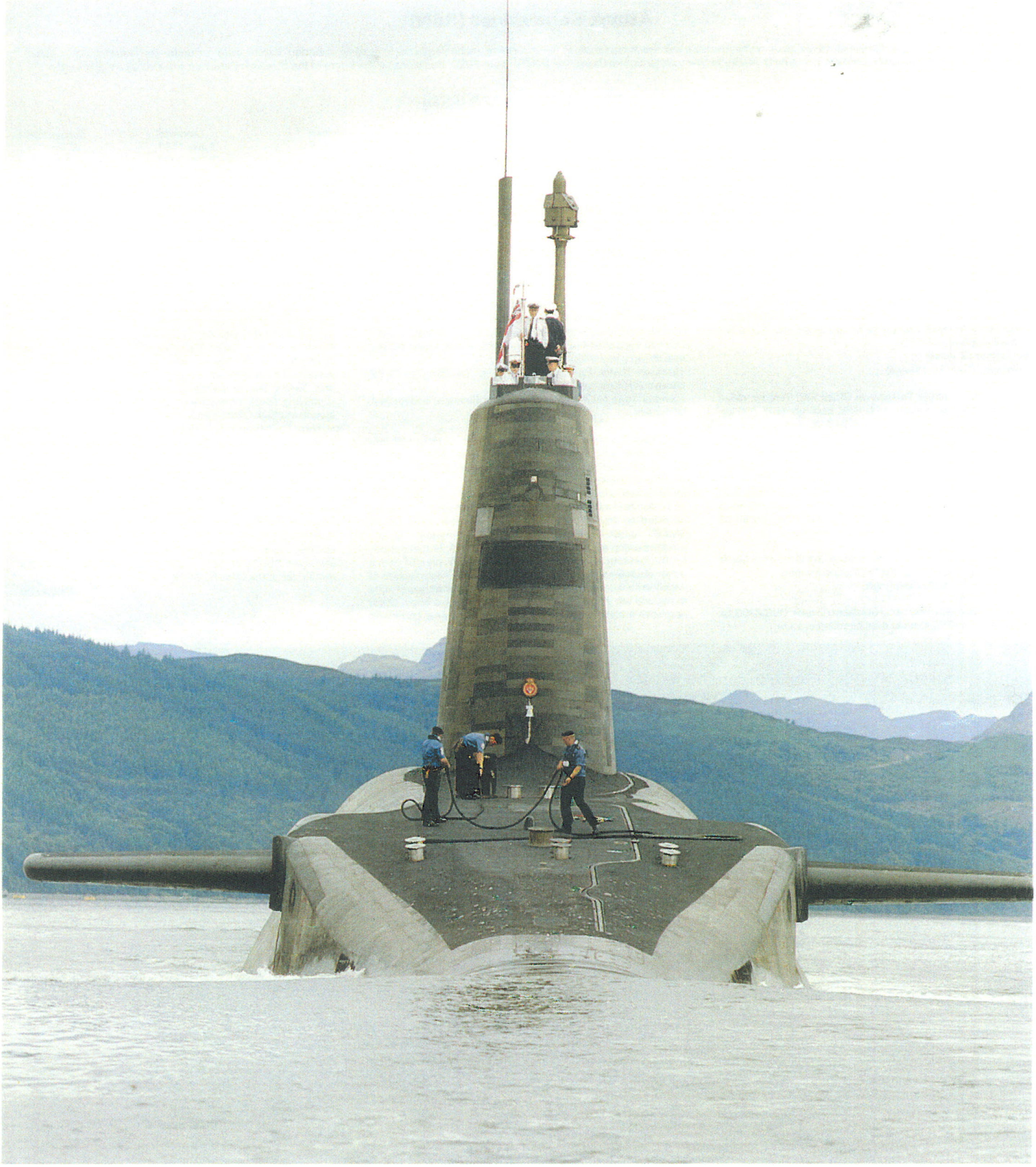


VENGEANCE *6/2000* / 0106676

VENGEANCE *4/2002, H M Steele* / 0530041



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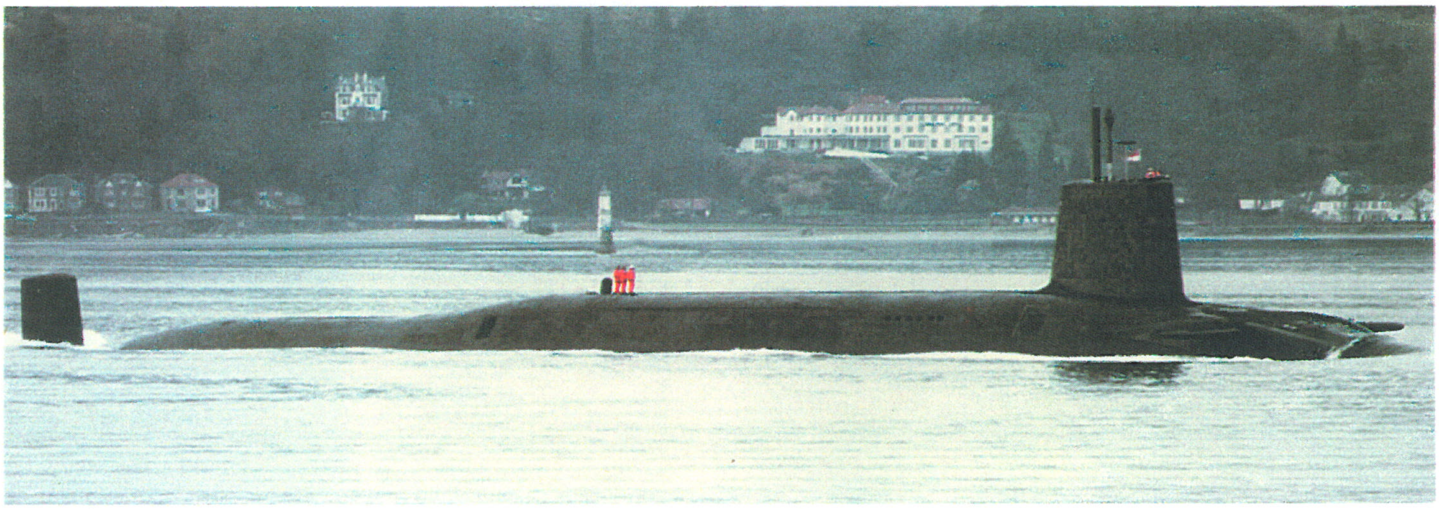

VIGILANT *6/2001, H M Steele* / 0131255

Attack Submarines (SSN)

Notes: Future submarine requirements are being taken forward in a twin-track approach. In the short-term, technology advances to an extended 'Astute' class are under consideration. Conceptual studies are also investigating requirements for a 'Maritime Underwater Future Capability' (MUFC) post 2020. Decisions on the future of the Strategic Deterrent will also be a major factor.

7 TRAFALGAR CLASS (SSN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
TRAFALGAR	S 107	Vickers Shipbuilding & Engineering, Barrow-in-Furness	25 Apr 1979	1 July 1981	27 May 1983
TURBULENT	S 87	Vickers Shipbuilding & Engineering, Barrow-in-Furness	8 May 1980	1 Dec 1982	28 Apr 1984
TIRELESS	S 88	Vickers Shipbuilding & Engineering, Barrow-in-Furness	6 June 1981	17 Mar 1984	5 Oct 1985
TORBAY	S 90	Vickers Shipbuilding & Engineering, Barrow-in-Furness	3 Dec 1982	8 Mar 1985	7 Feb 1987
TRENCHANT	S 91	Vickers Shipbuilding & Engineering, Barrow-in-Furness	28 Oct 1985	3 Nov 1986	14 Jan 1989
TALENT	S 92	Vickers Shipbuilding & Engineering, Barrow-in-Furness	13 May 1986	15 Apr 1988	12 May 1990
TRIUMPH	S 93	Vickers Shipbuilding & Engineering, Barrow-in-Furness	2 Feb 1987	16 Feb 1991	12 Oct 1991

Displacement, tons: 4,740 surfaced; 5,208 dived
Dimensions, feet (metres): 280.1 × 32.1 × 31.2 *(85.4 × 9.8 × 9.5)*
Main machinery: Nuclear; 1 RR PWR 1; 2 GEC turbines; 15,000 hp *(11.2 MW)*; 1 shaft; pump jet propulsor; 2 WH Allen turbo generators; 3.2 MW; 2 Paxman diesel alternators; 2,800 hp *(2.09 MW)*; 1 motor for emergency drive; 1 auxiliary retractable prop
Speed, knots: 32 dived
Complement: 130 (18 officers)

Missiles: SLCM: Hughes Tomahawk Block IIIC; Tercom aided inertial navigation system with GPS back-up to 1,700 km *(918 n miles)* at 0.7 Mach; warhead 318 kg shaped charge or submunitions. Being fitted to all from 1999.
SSM: McDonnell Douglas UGM-84B Sub Harpoon Block 1C; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
Torpedoes: 5—21 in *(533 mm)* bow tubes. Marconi Spearfish; wire-guided; active/passive homing to 26 km *(14 n miles)* at 65 kt; or 31.5 km *(17 n miles)* at 50 kt; attack speed 55 kt; warhead 300 kg directed charge; 20 reloads.
Mines: Can be carried in lieu of torpedoes.
Countermeasures: Decoys: SAWCS from 2002. 2 SSE Mk 8 launchers. Type 2066 and 2071 torpedo decoys.
RESM: Racal UAP; passive intercept.
CESM: Outfit CXA.
Combat data systems: Ferranti/Gresham/Dowty DCB/DCG or BAE Systems SMCS tactical data handling system.
Weapons control: BAE Systems SMCS.
Radars: Navigation: Kelvin Hughes Type 1007; I-band.
Sonars: Marconi 2072; hull-mounted; flank array; passive; low frequency.
Plessey Type 2020 or Marconi/Plessey 2074 or Thales Underwater Systems (TUS) 2076 (see *Modernisation*); hull-mounted; passive/active search and attack; low frequency.
Ferranti Type 2046 or TUS Type 2076; towed array; passive search; very low frequency.
Thomson Sintra Type 2019 PARIS or THORN EMI 2082; passive intercept and ranging.
Marconi Type 2077; short-range classification; active; high frequency.

Programmes: *Trafalgar* ordered 7 April 1977; *Turbulent* 28 July 1978; *Tireless* 5 July 1979; *Torbay* 26 June 1981; *Trenchant* 22 March 1983; *Talent* 10 September 1984; *Triumph* 3 January 1986.
Modernisation: *Trafalgar* completed refuel in December 1995 and was fitted with SMCS and Spearfish torpedoes. *Turbulent* refuelled by mid-1997 and was refitted with sonar 2074, SMCS and Spearfish. *Tireless* completed similar modernisation and refuelling in January 1999. Refuel periods for the last four boats are being undertaken in parallel with a major tactical modernisation programme, the main feature of which is installation of the sonar 2076 integrated sonar suite to replace the 2074 bow array and 2046 towed array. Other upgrades include enhancements to SMCS, a new command console and improved signature reduction measures. *Torbay* was the first to complete a 2076 refit and refuel in February 2003 and *Trenchant*, completed in early 2004. *Talent* started her three-year refit in 2003 and *Triumph* will complete the refuel and major refit programme. A programme of software replacement will continue to realise capability improvements in the last four boats. As a parallel programme, Tomahawk Block III cruise missiles are being fitted to the whole class. *Triumph* and *Trafalgar* were completed by mid-2001, *Turbulent* in 2002 and *Trenchant* in 2004; *Tireless*, *Torbay* and *Talent* are to be fitted by 2006. The feasibility of modifying Block IV missiles (Tactical Tomahawk) for tube-launch studied. CESM system replaced from 2002.
Structure: The pressure hull and outer surfaces are covered with conformal anechoic noise reduction coatings. Retractable forward hydroplanes and strengthened fins for under ice operations. Diving depth in excess of 300 m *(985 ft)*. Fitted with Pilkington Optronics CK 34 search and CH 84 or CM 010 attack optronic periscopes.
Operational: *Trafalgar* was the trials submarine for Spearfish which started full production in 1992 and was first embarked operationally in *Trenchant* in early 1994. All of the class based at Devonport. The class is planned to pay off as follows: *Trafalgar* 2008; *Turbulent* 2009; *Tireless* 2011 and the remainder of the class by 2023.

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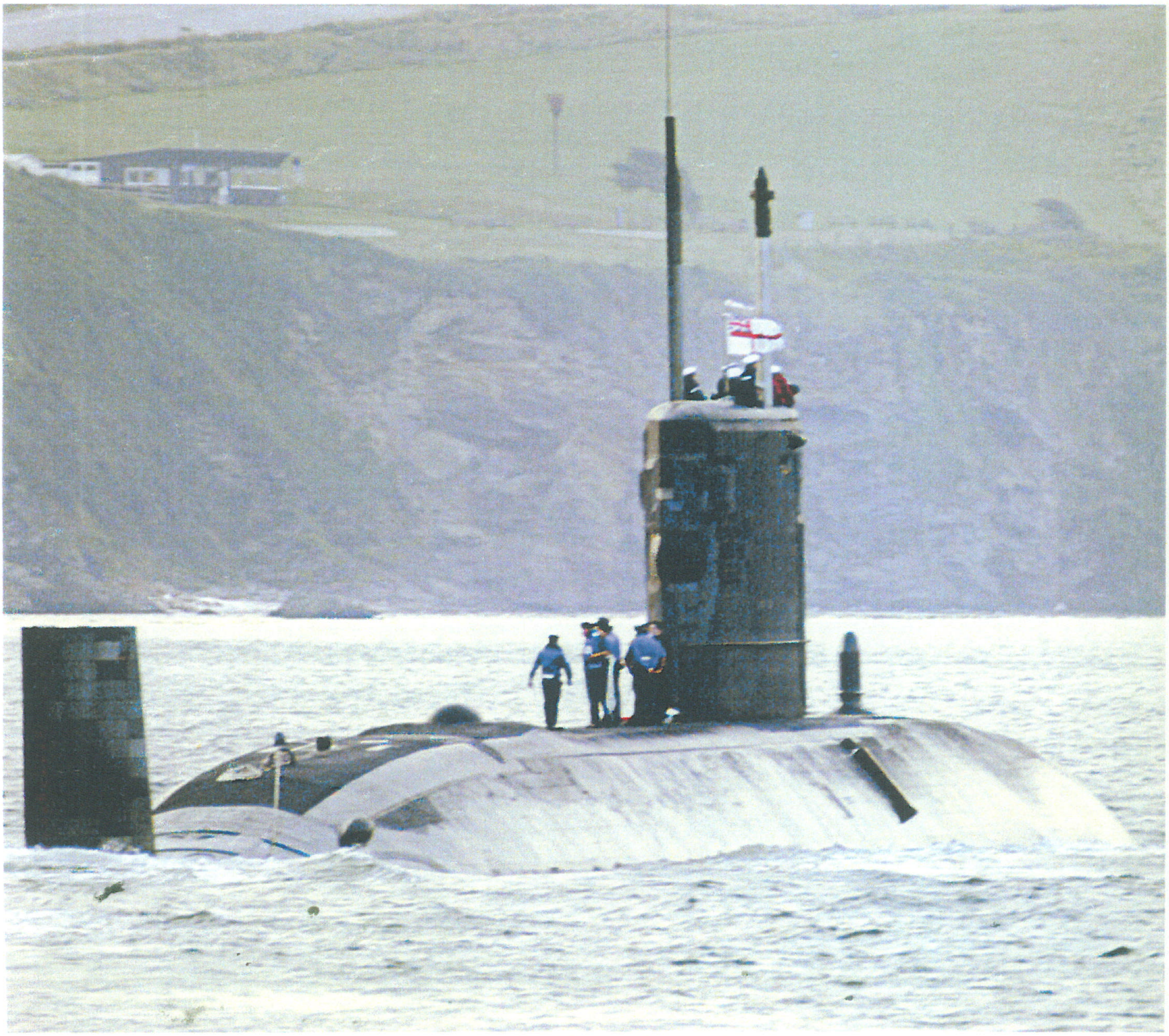
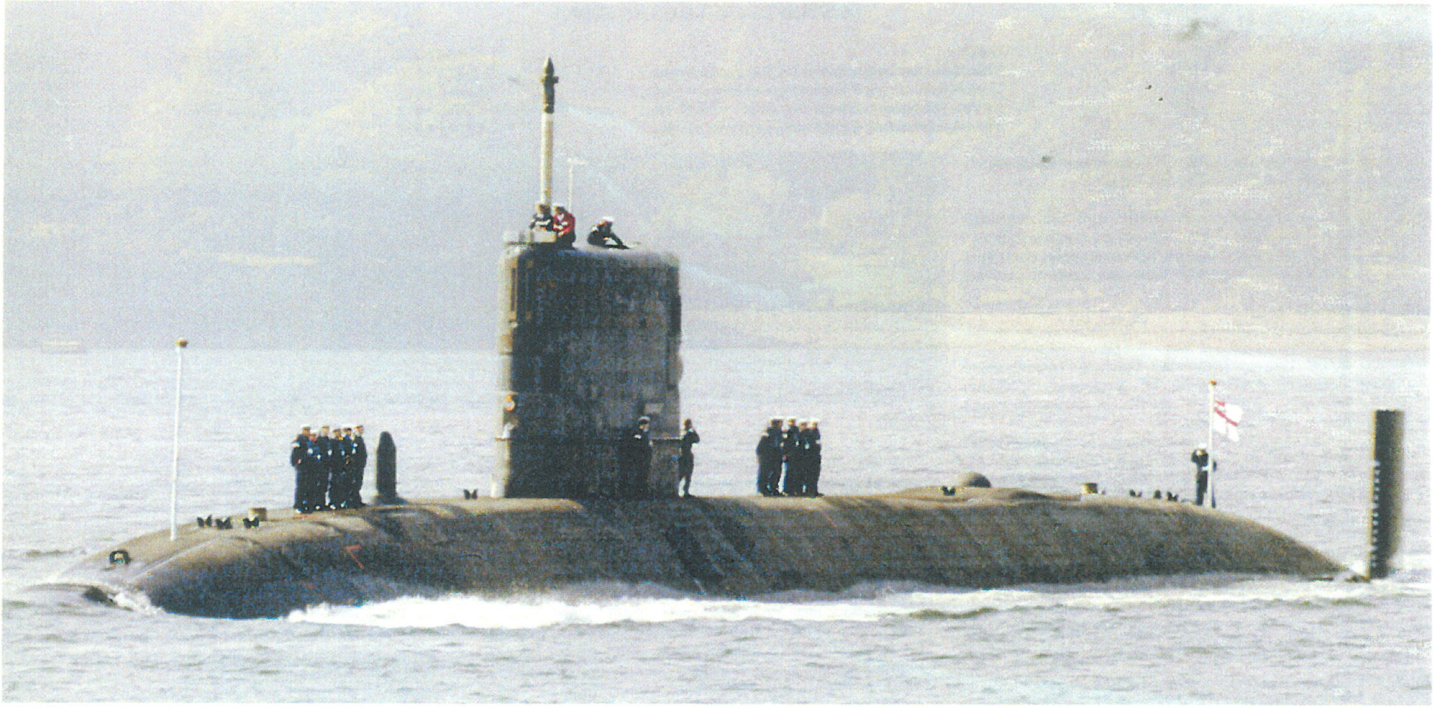
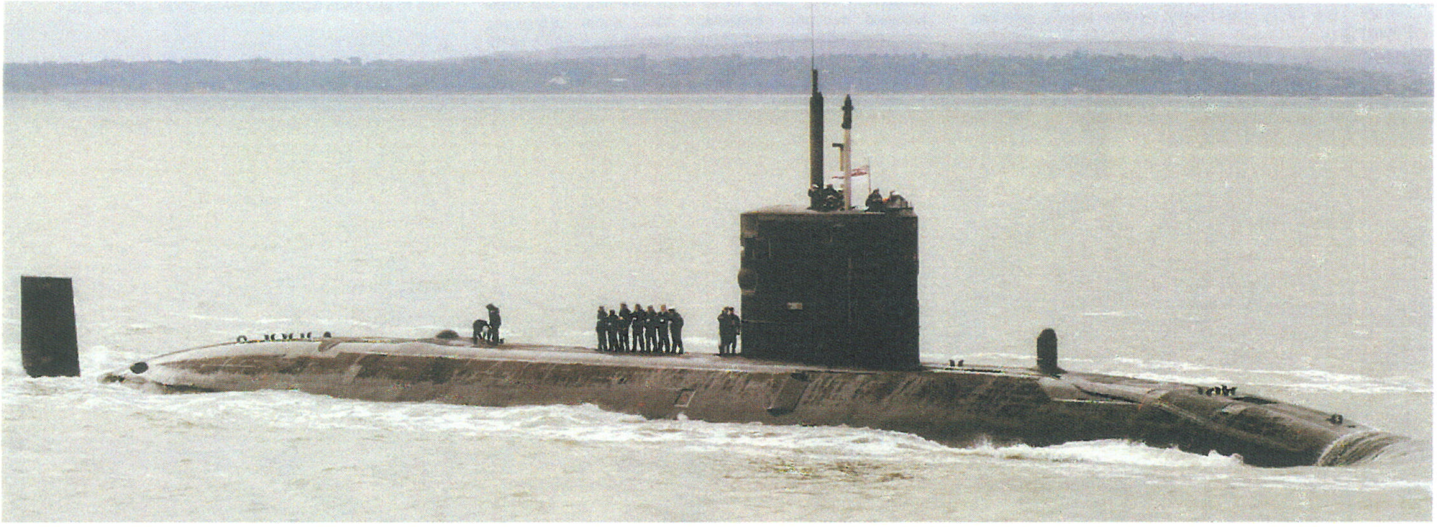


TORBAY

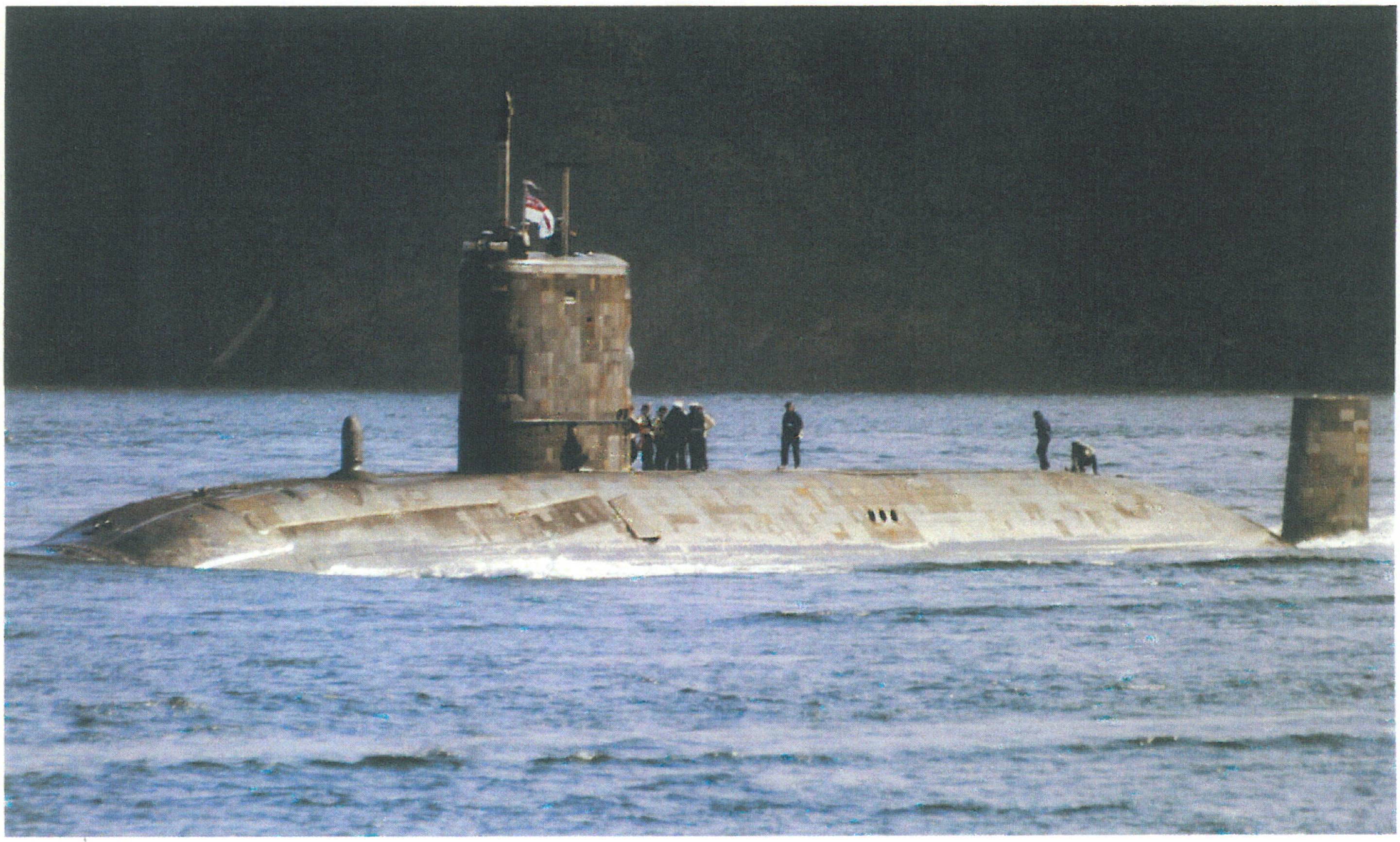
8/2003, H M Steele* / 0572693



TURBULENT *9/2003*, B Sullivan* / 0572692



TORBAY *10/2003*, Maritime Photographic* / 0572718



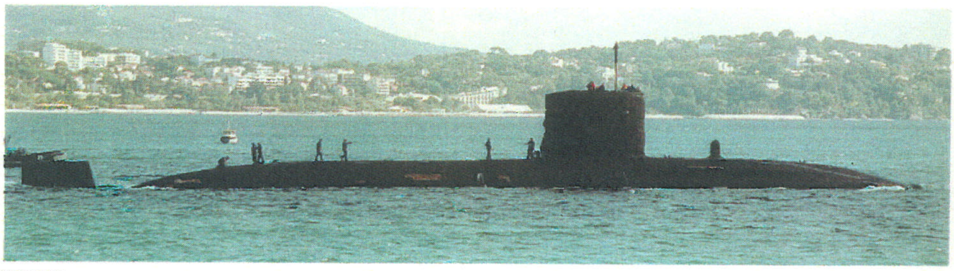
TRIUMPH *6/2003*, B Sullivan* / 0572719

4 SWIFTSURE CLASS (SSN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SOVEREIGN	S 108	Vickers Shipbuilding & Engineering, Barrow-in-Furness	18 Sep 1970	17 Feb 1973	11 July 1974
SUPERB	S 109	Vickers Shipbuilding & Engineering, Barrow-in-Furness	16 Mar 1972	30 Nov 1974	13 Nov 1976
SCEPTRE	S 104	Vickers Shipbuilding & Engineering, Barrow-in-Furness	19 Feb 1974	20 Nov 1976	14 Feb 1978
SPARTAN	S 105	Vickers Shipbuilding & Engineering, Barrow-in-Furness	26 Apr 1976	7 Apr 1978	22 Sep 1979

Displacement, tons: 4,000 light; 4,400 standard; 4,900 dived
Dimensions, feet (metres): 272 × 32.3 × 28 *(82.9 × 9.8 × 8.5)*
Main machinery: Nuclear; 1 RR PWR 1; 2 GEC turbines; 15,000 hp *(11.2 MW)*; 1 shaft; pump jet propulsor; 2 WH Allen turbo generators; 3.6 MW; 1 Paxman diesel alternator; 1,900 hp *(1.42 MW)*; 1 motor for emergency drive; 1 auxiliary retractable prop
Speed, knots: 30+ dived
Complement: 116 (13 officers)

Missiles: SLCM: Hughes Tomahawk Block III; Tercom aided inertial navigation system with GPS back-up to 1,700 km *(918 n miles)* at 0.7 Mach; warhead 318 kg shaped charge or submunitions. Fitted in S 105 only.
SSM: McDonnell Douglas UGM-84B Sub Harpoon; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
Torpedoes: 5—21 in *(533 mm)* bow tubes. Marconi Spearfish; wire-guided; active/passive homing to 26 km *(14 n miles)* at 65 kt; or 31.5 km *(17 n miles)* at 50 kt; attack speed 55 kt; warhead 300 kg directed charge; 20 reloads.
Mines: Can be carried in lieu of torpedoes.
Countermeasures: Decoys: SAWCS from 2002. 2 SSE Mk 6 launchers. Type 2066 and 2071 torpedo decoys.
ESM: Racal UAP; passive intercept.
Combat data systems: Ferranti/Gresham/Dowty DCB/DCG or Dowty Sema SMCS tactical data handling system. Link 11 can be fitted.
Radars: Navigation: Kelvin Hughes Type 1007; I-band.
Sonars: Marconi/Plessey Type 2074; hull-mounted; active/passive search and attack; low frequency.
Marconi 2072; flank array; passive; low frequency.
Ferranti Type 2046; towed array; passive search; very low frequency.
Thomson Sintra Type 2019 PARIS or THORN EMI 2082; passive intercept and ranging.
Marconi Type 2077; short-range classification; active; high frequency.


SUPERB *1/2002, Ships of the World* / 0131254

Programmes: *Sovereign* ordered 16 May 1969; *Superb*, 20 May 1970; *Sceptre*, 1 November 1971; *Spartan*, 7 February 1973; *Splendid*, 26 May 1976.
Modernisation: Each boat fitted with a PWR 1 Core Z during major refits to give a 8 to 10 year refit cycle (12 year life). *Sovereign* completed her first refit in 1984 and her second, with full tactical weapons system upgrade and Spearfish, in 1997. Similarly, *Superb* completed refits in 1986 and 1998 and *Sceptre* in 1987 and 2001. *Spartan* completed her first refit in 1989 and, having entered her second refit in 1999, completed early 2003. Other improvements to the class included acoustic elastomeric tiles, sonar processing equipment and improved decoys. Marconi Type 2077, short-range classification sonar is also fitted and Marconi/Plessey 2074 bow sonar has replaced 2020. *Spartan* was equipped with Tomahawk Block III missiles in 2003 but the remainder of the class is not to be fitted. *Spartan* modified to operate with Dry Deck Hangar in 2003.
Structure: The pressure hull in the 'Swiftsure' class maintains its diameter for much greater length than previous classes. Control gear by MacTaggart, Scott & Co Ltd for: attack and search periscopes, snort induction and exhaust, radar and ESM masts. The forward hydroplanes house within the casing. Fitted with Pilkington Optronics CK 33 search and CH 83 attack electro-optic periscopes.
Operational: All based at Faslane. As a result of budget cuts *Swiftsure* paid off in 1992 after less than 20 years' service and *Splendid* decommissioned in 2003. *Sovereign* and *Spartan* are to pay off in 2006, *Superb* in 2008 and *Sceptre* in 2010.
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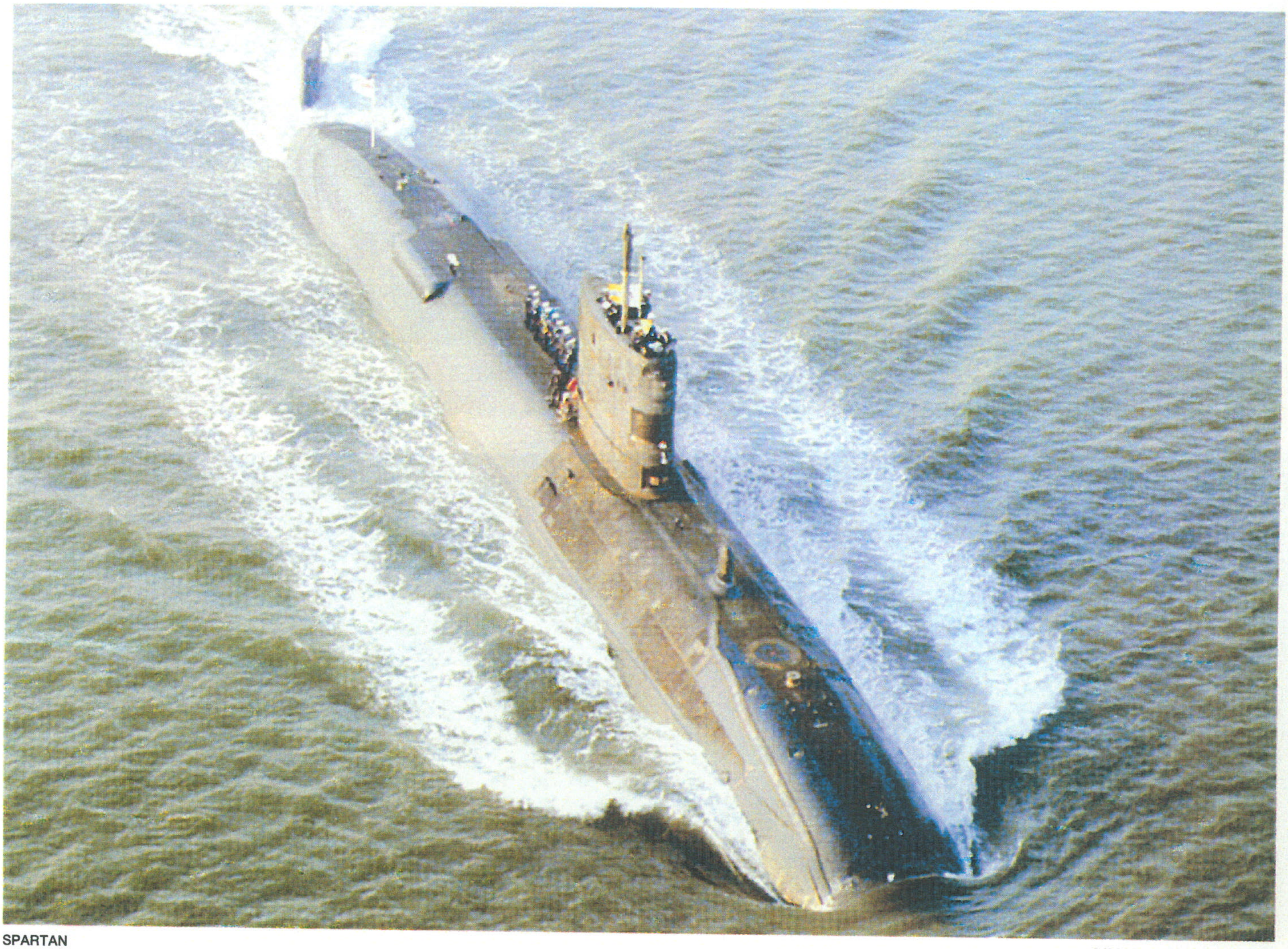
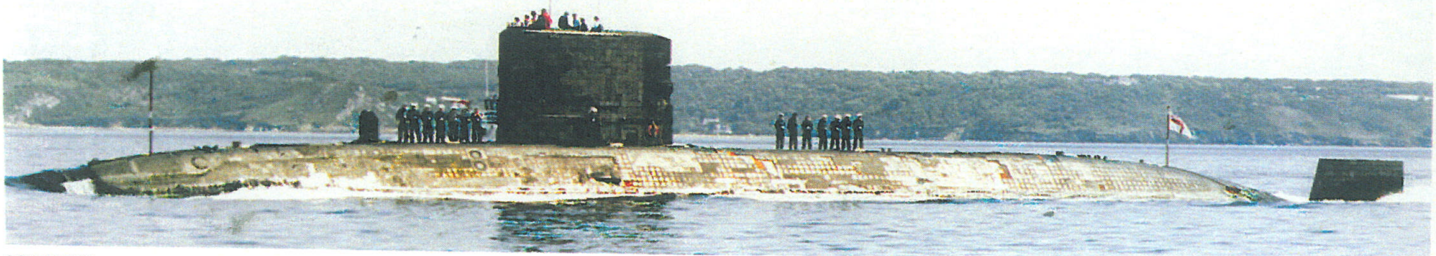

SPARTAN *3/2003*, H M Steele* / 0563246


SOVEREIGN *5/2003*, B Prézelin* / 0572689

0 + 3 (3) ASTUTE CLASS (SSN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ASTUTE	S 20	BAE Systems, Barrow	31 Jan 2001	Aug 2007	2008
AMBUSH	S 21	BAE Systems, Barrow	22 Oct 2003	2009	2010
ARTFUL	S 22	BAE Systems, Barrow	2004	2010	2011

Displacement, tons: 6,500 surfaced; 7,800 dived
Dimensions, feet (metres): 318.2 × 37.0 × 32.8 *(97 × 11.27 × 10)*
Main machinery: Nuclear; 1 RR PWR 2; 2 Alsthom turbines; 1 shaft; pump jet propulsor; 2 turbo generators; 2 diesel alternators; 2 motors for emergency drive; 1 auxiliary retractable prop
Speed, knots: 29 dived
Complement: 98 (12 officers) plus 12 spare

Missiles: SLCM: Tomahawk.
SSM: Sub Harpoon.
Torpedoes: 6—21 in *(533 mm)* tubes for Tomahawk, Sub Harpoon and Spearfish torpedoes. Total of 38 weapons.
Mines: In lieu of torpedoes.
Countermeasures: Decoys. ESM: Racal UAP 4; intercept.
Combat data systems: BAE Systems ACMS tactical data handling system. Links 11/16.
Radars: Navigation: I-band.
Sonars: Thomson Marconi 2076 integrated suite with reelable towed array.

Programmes: Invitations to tender issued on 14 July 1994 to build three of the class with an option on two more. GEC-Marconi selected as prime contractor in December 1995. Contract to start building the first three placed on 17 March 1997. First steel cut late 1999 but although formal keel-laying took place in 2001, design, engineering and programme management difficulties have led to a three-year delay to the first of class. Similar delays to the second and third of class are expected. As a result, the decision on Batch 2, consisting of up to three more boats, remains under review.
Structure: An evolution of the Trafalgar design with increased weapon load and reduced radiated noise but with overall performance similar to Trafalgar after full modernisation. The fin is slightly longer and there are two Pilkington Optronics CM010 non-hull-penetrating periscopes. The boats are to have a dry dock hangar capability.
Operational: Fitted with Core H, nuclear refuelling will not be necessary in the lifetime of the submarine. To be based at Faslane.

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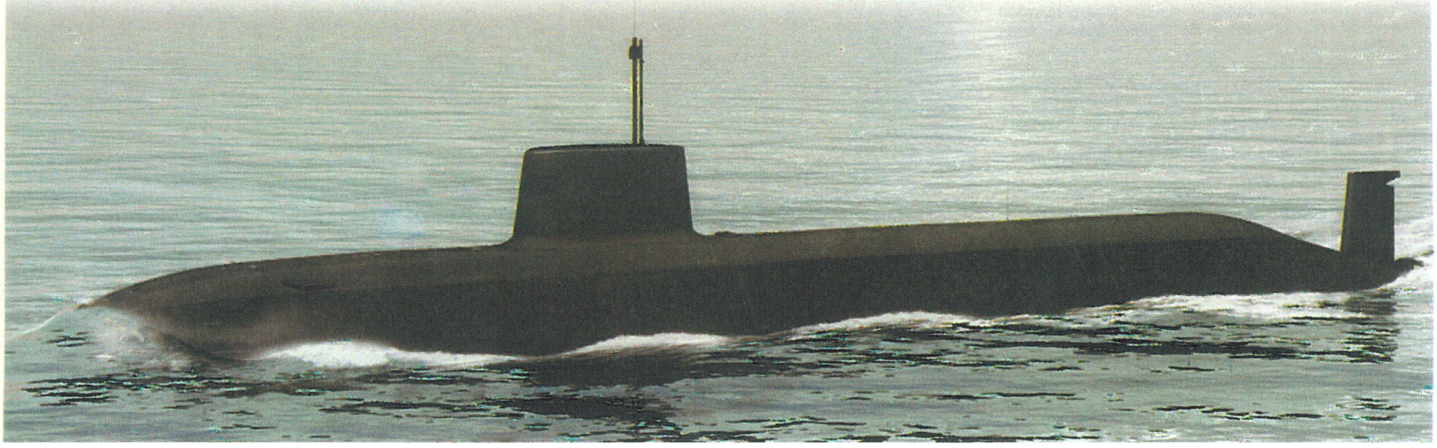

ASTUTE (computer graphic)

2001, BAE Systems / 0131260

AIRCRAFT CARRIERS

0 + (2) QUEEN ELIZABETH CLASS (CV)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
QUEEN ELIZABETH	—	—	2006	2009	2012
PRINCE OF WALES	—	—	2009	2012	2015

Displacement, tons: 58,000 full load
Dimensions, feet (metres): 931.7 × ? × ? *(284 × ? × ?)*
Flight deck, feet (metres): to be announced
Main machinery: Integrated Full Electric Propulsion using gas turbines and/or diesels
Speed, knots: 25+. **Range, miles:** to be announced
Complement: 600 approx plus aircrew

Guns: to be announced.
Countermeasures: to be announced.
Combat data systems: to be announced.
Weapons control: to be announced.
Radars: Air search: to be announced.
Surface search: to be announced.
Navigation: to be announced.
Fire Control: to be announced.
Tacan: to be announced.
Fixed-wing aircraft: Approximately 35: typically a mix of F35 combat aircraft, Merlin anti-submarine aircraft and Maritime Airborne Surveillance & Control aircraft.

Programmes: Following competitive assessment work to investigate design options, an alliance approach involving BAE Systems, Thales UK and the MoD was announced on 30 January 2003 as the best method for delivering the ships. This collaborative approach is to be enabled by a formal contracting arrangement. The third stage of assessment (AP3) began formally on 5 September 2003 and is to complete during 2004 when, following Main Gate, the award of the contract for Demonstration and Manufacture is expected to be made. The ship is to be built in three to five separate sections with final assembly likely to be undertaken at Rosyth. This will require widening of a dock and the approach channel. Other principal shipyards likely to be involved in construction are BAE Systems Marine at Govan, Swan Hunter at Wallsend-on-Tyne and VT Shipbuilding at Portsmouth. The use of other yards cannot be ruled out. The target in-service date remains at 2012, although there is a risk of programme slippage.
Structure: The initial 65,000 ton design solution was developed by Thales UK, for which BMT Defence Services was principal naval architect. This incorporated a 'ski-ramp' to enable operation of the STOVL variant of the Lockheed Martin F35 Joint Strike Fighter (selected on 30 September 2002) and a novel two-island arrangement, with flight control from the after island, and two deck-edge aircraft lifts. Allowance was also made for future conversion to facilitate CTOL operations although catapults, steam generation plant and arrestor gear will not be fitted in the initial STOVL configuration. Following cost-capability trade-offs, the revised design is likely to retain many of these features, although it is likely to be smaller (dimensions are speculative) with the capability to operate 35 aircraft. Proposals for a highly automated weapon-handling system and podded propulsors are not likely to be included.
Operational: To be based at Portsmouth.

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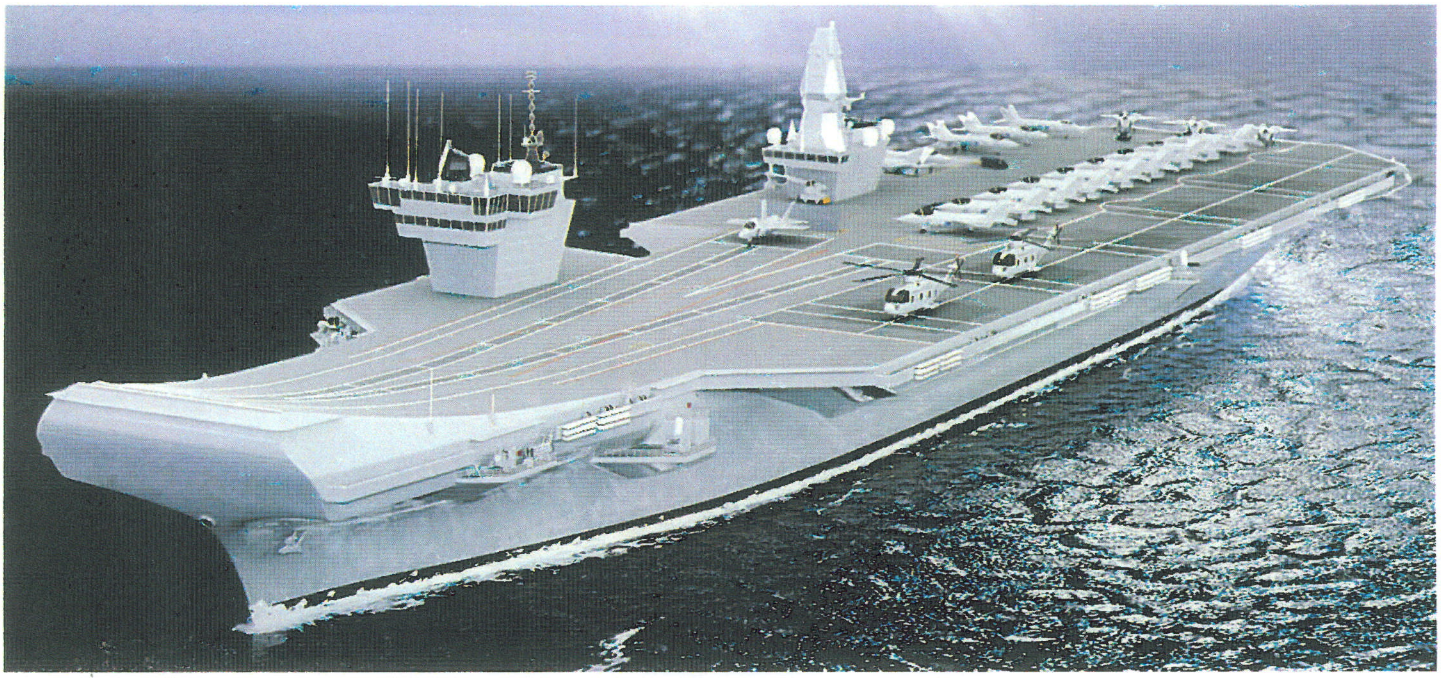


CVF (initial design concept)

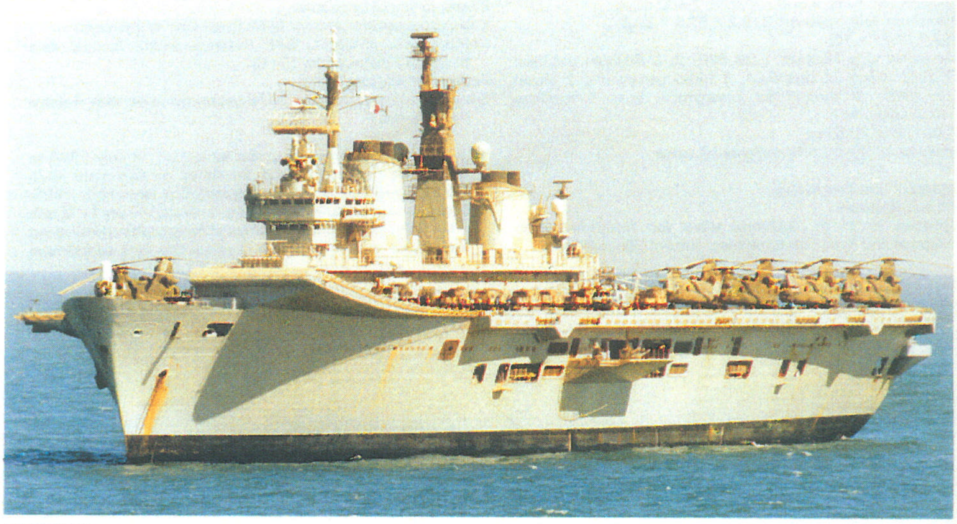
6/2002, Thales / 0523598

3 INVINCIBLE CLASS (CV)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
INVINCIBLE	R 05	Vickers Shipbuilding & Engineering, Barrow-in-Furness	20 July 1973	3 May 1977	11 July 1980
ILLUSTRIOUS	R 06	Swan Hunter Shipbuilders, Wallsend	7 Oct 1976	1 Dec 1978	20 June 1982
ARK ROYAL	R 07	Swan Hunter Shipbuilders, Wallsend	14 Dec 1978	2 June 1981	1 Nov 1985

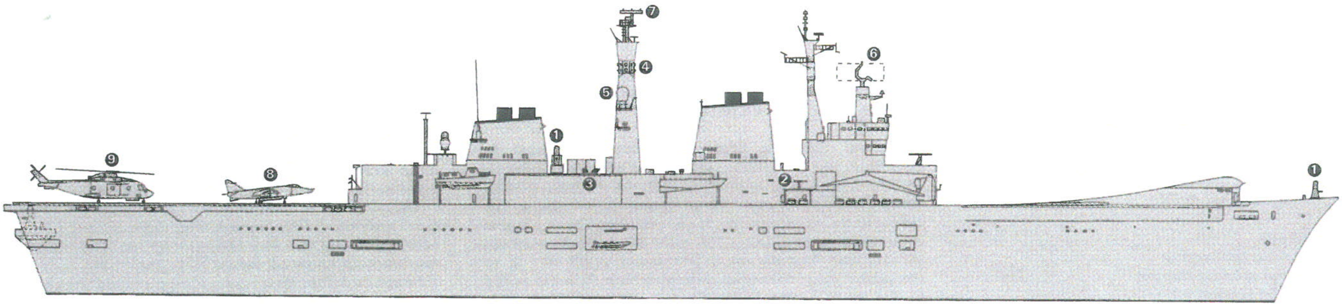
Displacement, tons: 20,600 full load
Dimensions, feet (metres): 685.8 oa; 632 wl × 118 oa; 90 wl × 26 (screws) *(209.1; 192.6 × 36; 27.5 × 8)*
Flight deck, feet (metres): 550 × 44.3 *(167.8 × 13.5)*
Main machinery: COGAG; 4 RR Olympus TM3B gas turbines; 97,200 hp *(72.5 MW)* sustained; 2 shafts
Speed, knots: 28. **Range, miles:** 7,000 at 19 kt
Complement: 685 (60 officers) plus 366 (80 officers) aircrew plus up to 600 marines

Guns: 3 Signaal/General Electric 30 mm 7-barrelled Gatling Goalkeeper (R 05 and R 06); 4,200 rds/min to 1.5 km.
3 General Electric/General Dynamics 20 mm Vulcan Phalanx Mk 15 (R 07) ❶; 6 barrels/launcher; 3,000 rds/min to 1.5 km.
2 Oerlikon/BMARC 20 mm GAM-BO1 ❷.
Countermeasures: Decoys: Outfit DLH; 8 Sea Gnat 6-barrelled 130 mm/102 mm dispensers ❸. Prairie Masker noise suppression system.
ESM: Racal Thorn UAT ❹; intercept.
Combat data systems: ADAWS 10 (with ADIMP) action data automation; Links 10, 11, 14 and Siemens Plessey JTIDS Link 16. JMCIS. Matra Marconi SCOT 2D SATCOM ❺.
Weapons control: Rademec optronic director.
Radars: Air search: Marconi/Signaal Type 1022 ❻; D-band.
Surface search: Plessey Type 996 ❼; E/F-band.
Navigation: 2 Kelvin Hughes Type 1007; I-band.
1 Racal Decca 1008; E/F-band.
Sonars: Plessey Type 2016; hull-mounted; active search and attack; medium frequency.

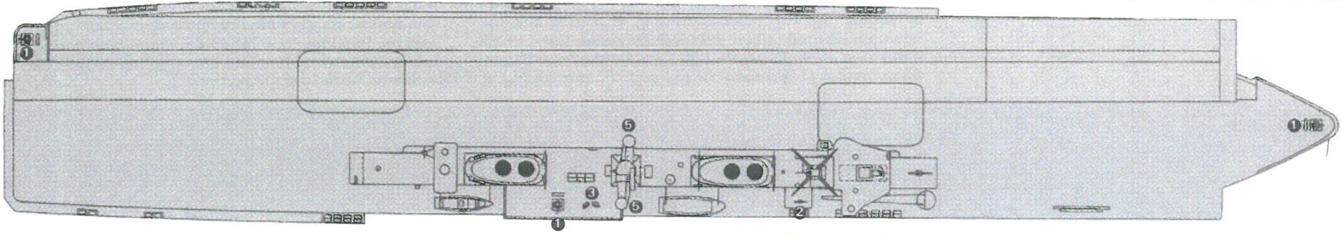

ARK ROYAL
3/2003, A Sharma* / 0572688

Fixed-wing aircraft: 8 BAe Sea Harrier FA 2 ❽ and 8 Harrier GR 7.
Helicopters: 2 Westland Merlin HM.Mk 1 ❾; 4 Westland Sea King ASAC Mk 7. Capable of operating Chinook.

Programmes: The first of class, the result of many compromises, was ordered from Vickers on 17 April 1973. The order for the second ship was placed on 14 May 1976, the third in December 1978.
Modernisation: In January 1989 R 05 completed modernisation which included a 12° ski ramp, space and support facilities for at least 21 aircraft, three Goalkeeper systems, Sonar 2016, Sea Gnat decoys, 996 radar, Flag and Command facilities and accommodation for an additional 120 aircrew and Flag Staff. In February 1994 R 06 completed a similar modernisation to bring her to the same standard, but with additional command and weapon system improvements. In addition R 06 has a modified main mast and sponsons for chaff launchers. Ski ramp has been increased to 13°. Modifications to operate Harrier GR.7 have been completed in all three ships (R 06 – 1998, R 05 – 2000 and R 07 – 2001). This included the removal of Sea Dart, increasing the flight deck area by 7 per cent (23 × 18 m) and fitting GR.7 support facilities. All ships are equipped to act as Joint Force HQ. Combat system upgraded to ADIMP standard (R 05 last to be fitted in 2003). All ships are equipped to act as Joint Force HQ. Combat data system in R 05, last ship to be improved to ADIMP standard by late 2003. This included the removal of Sea Dart, increasing the flight deck area by 7 per cent, (23 × 18 m) and fitting GR 7 support facilities.
Structure: In 1976-77 an amendment was incorporated to allow for the transport and landing of an RM Commando. The forward end of the flight deck (ski ramp) allows STOVL aircraft of greater all-up weight to operate more efficiently. *Illustrious* fitted with a third mast at the after end of the island structure to provide mountings for additional communications. She has also had substantial internal changes to accommodate troops in the LPH role. *Ark Royal* will receive a third mast in 2005.
Operational: The primary role of this class is to operate STOVL aircraft and helicopters. Sea Harriers are to be phased out between 2004-06 during which time the embarked fixed-wing air-group will migrate to an all Harrier GR. Mk 7A/9A ground-attack force. The aircraft numbers shown are for the combined shore support operational role. *Ark Royal* deployed the first front-line Merlin helicopter squadron. *Invincible*'s one year tailored refit completed in early 2003 and in October 2003 she assumed the duties of Fleet Flagship from *Ark Royal*. *Illustrious* is to complete a two-year refit in late 2004 and thereafter will relieve *Ark Royal* (including the standby LPH role). Following a refit in 2005, *Ark Royal* will relieve *Invincible* in 2006. *Invincible* will then revert to extended readiness while *Illustrious* and *Ark Royal* continue in service until 2012 and 2015 respectively when the CVF enter service. All based at Portsmouth. ***UPDATED***



ARK ROYAL
(Scale 1 : 1,200), Ian Sturton / 0131372



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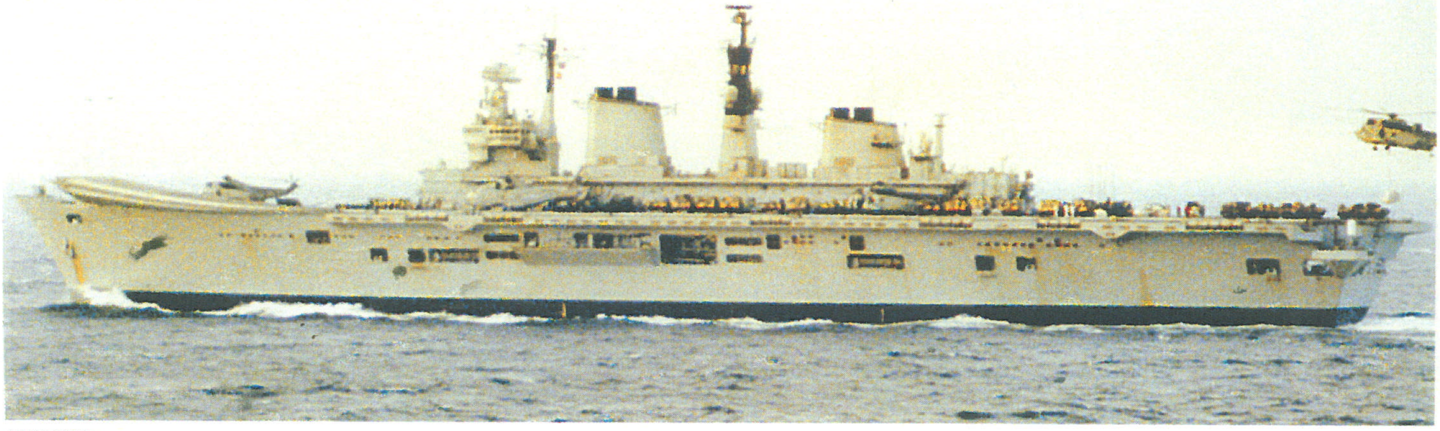
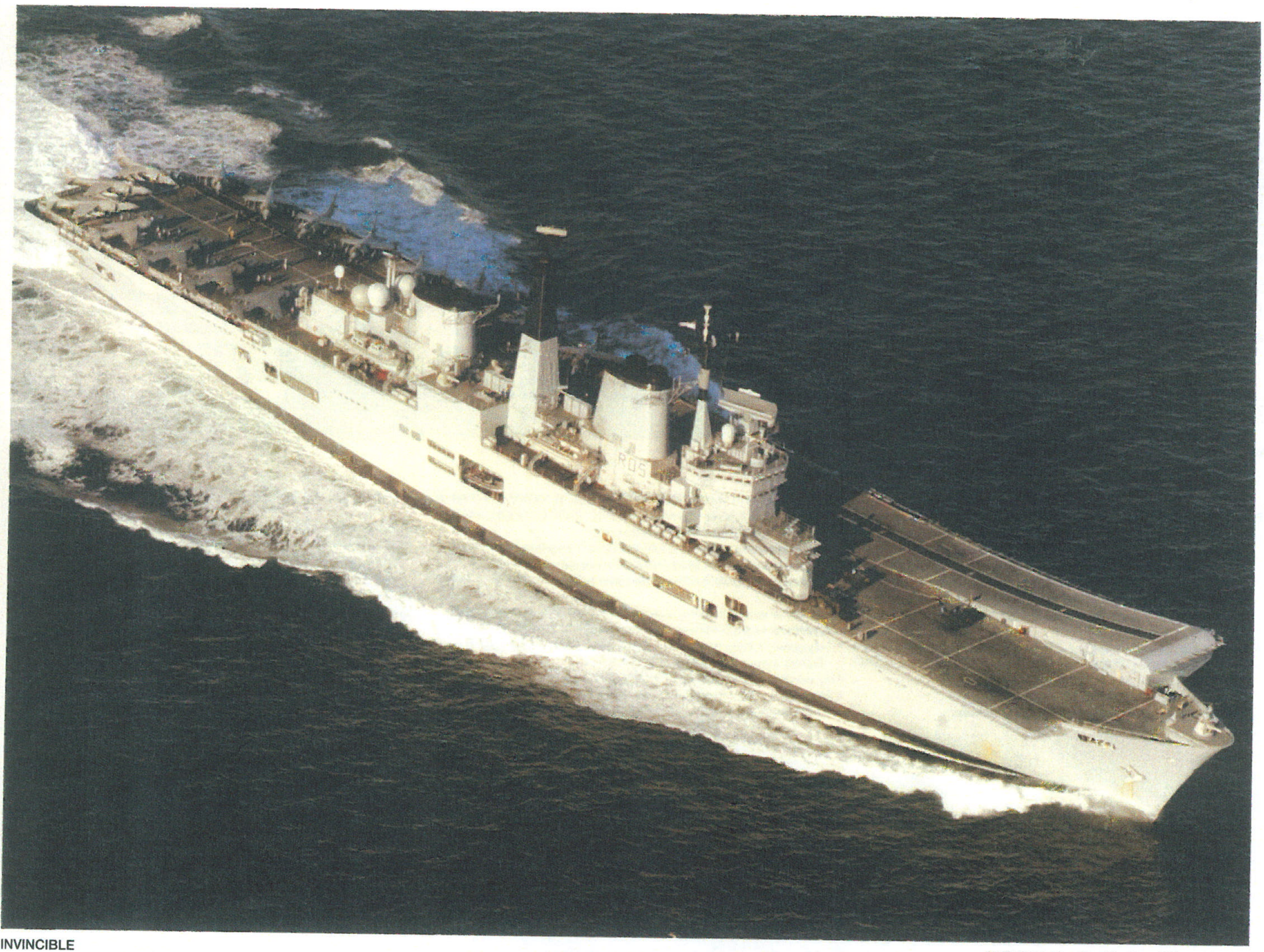
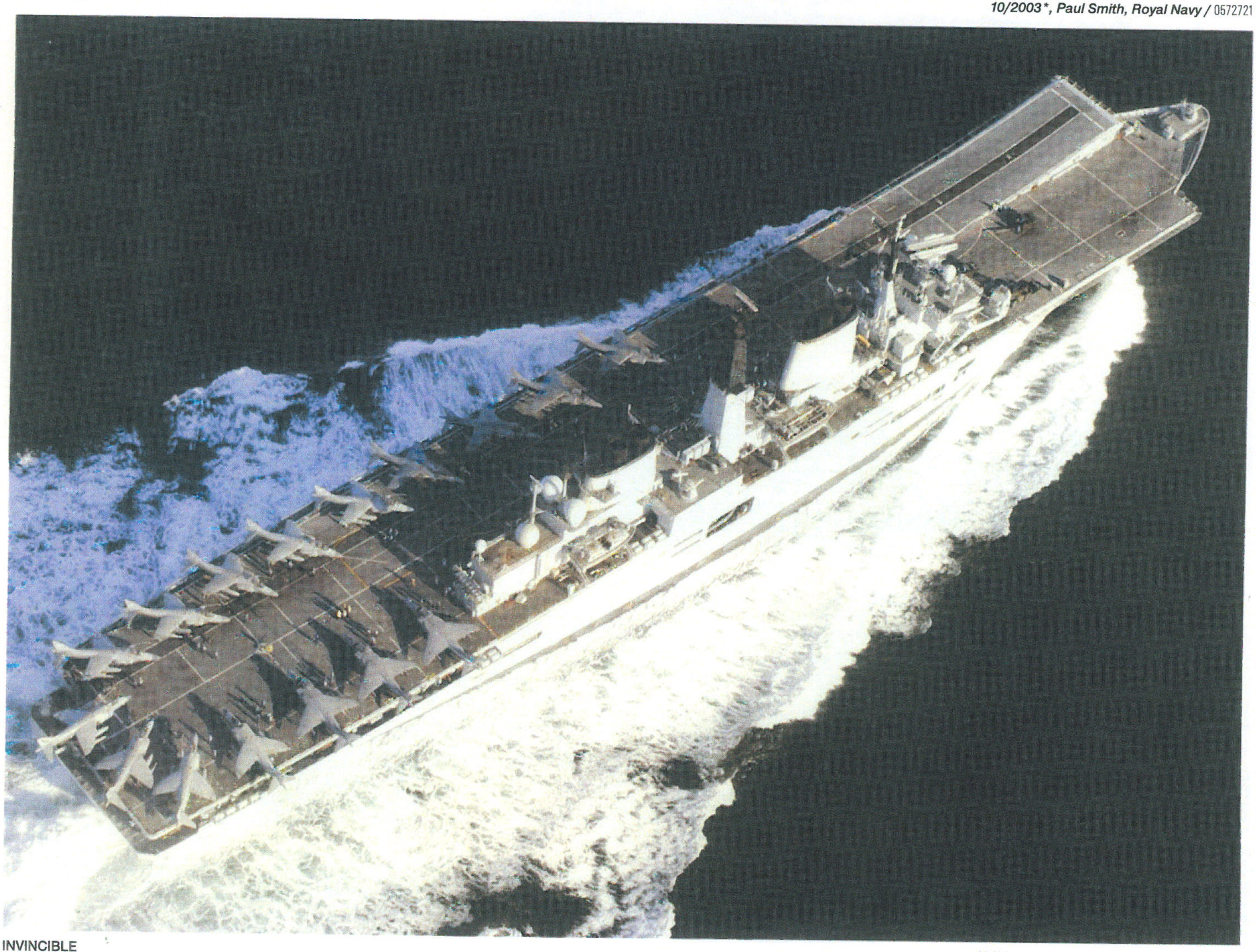

ARK ROYAL
3/2003, A Sharma* / 0572687



INVINCIBLE

10/2003, Paul Smith, Royal Navy* / 0572721



INVINCIBLE

10/2003, Paul Smith, Royal Navy* / 0572720

DESTROYERS

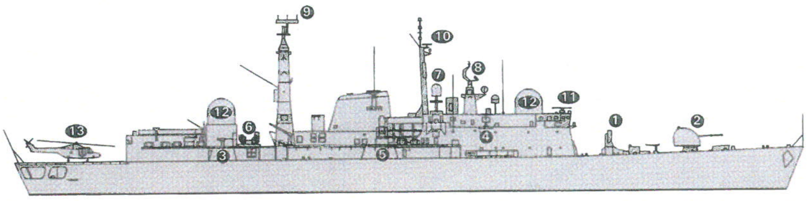
Notes: *Bristol* (D 23) is an immobile tender used for training in Portsmouth Harbour.

7 TYPE 42 CLASS (BATCHES 1 AND 2) (DDGH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
NEWCASTLE	D 87	Swan Hunter Shipbuilders, Wallsend-on-Tyne	21 Feb 1973	24 Apr 1975	23 Mar 1978
GLASGOW	D 88	Swan Hunter Shipbuilders, Wallsend-on-Tyne	16 Apr 1974	14 Apr 1976	24 May 1979
CARDIFF	D 108	Vickers Shipbuilding & Engineering, Barrow-in-Furness	6 Nov 1972	22 Feb 1974	24 Sep 1979
EXETER	D 89	Swan Hunter Shipbuilders, Wallsend-on-Tyne	22 July 1976	25 Apr 1978	19 Sep 1980
SOUTHAMPTON	D 90	Vosper Thornycroft, Woolston	21 Oct 1976	29 Jan 1979	31 Oct 1981
NOTTINGHAM	D 91	Vosper Thornycroft, Woolston	6 Feb 1978	18 Feb 1980	14 Apr 1983
LIVERPOOL	D 92	Cammell Laird, Birkenhead	5 July 1978	25 Sep 1980	1 July 1982

Displacement, tons: 3,500 standard; 4,100 full load
Dimensions, feet (metres): 412 oa; 392 wl × 47 × 19 (screws) *(125; 119.5 × 14.3 × 5.8)*
Main machinery: COGOG; 2 RR Olympus TM3B gas turbines; 50,000 hp *(37.3 MW)* sustained; 2 RR Tyne RM1C gas turbines (cruising); 9,900 hp *(7.4 MW)* sustained; 2 shafts; cp props
Speed, knots: 29. **Range, miles:** 4,000 at 18 kt
Complement: 287 (24 officers) (accommodation for 312)

Missiles: SAM: British Aerospace Sea Dart twin launcher ❶; radar/semi-active radar guidance to 40 km *(21.5 n miles)* at 2 Mach; height envelope 100-18,300 m *(328-60,042 ft)*; 22 missiles; limited anti-ship capability.
Guns: 1 Vickers 4.5 in *(114 mm)*/55 Mk 8 ❷; 25 rds/min to 22 km (27 km Batch 2) *(14.6 n miles)* anti-surface; 6 km *(3.3 n miles)* anti-aircraft; weight of shell 21 kg.
4 Oerlikon/BEMARC 20 mm GAM-BO1 ❸ and ❹; 1,000 rds/min to 2 km.
2 General Electric/General Dynamics 20 mm Vulcan Phalanx Mk 15 ❺; 6 barrels per launcher; 3,000 rds/min combined to 1.5 km.
Countermeasures: Decoys: Outfit DLH; 4 Sea Gnat 130 mm/102 mm 6-barrelled launchers ❻. Barricade IR decoy launchers. Irvin DLF 2/3 offboard decoys.
Type 2070 (SLQ-25A); towed torpedo decoy.
ESM: MEL UAA-2 or Racal Thorn UAT 1; intercept.



SOUTHAMPTON

(Scale 1 : 1,200), Ian Sturton / 0572736

Combat data systems: ADAWS 12 (Batch 1). ADAWS 20 Ed 2 (Batch 2). 2 Matra Marconi SCOT 1C SATCOMs ❼; Links 10 and 11. JTIDS. Link 16 in due course.
Weapons control: GWS 30 Mod 2; GSA 1 secondary system.
2 Radamec 2100 series optronic surveillance directors.
Radamec 1000N optronic director (can be fitted on bridge roof).
Radars: Air search: Marconi/Signaal Type 1022 ❽; D-band.
Air/surface search: Plessey Type 996 ❾; E/F-band.
Navigation: Kelvin Hughes Type 1007 ❿; I-band and Racal Decca Type 1008 ⓫; E/F-band.
Fire control: 2 Marconi Type 909 ⓬; I/J-band.
Sonars: Ferranti/Thomson Type 2050 or Plessey Type 2016; hull-mounted; active search and attack; medium frequency.

Helicopters: 1 Westland Lynx HMA 3/8 ⓭.

Programmes: First three are Batch 1 ships, remainder Batch 2.
Modernisation: Vulcan Phalanx replaced 30 mm guns in 1987-89. Batch 2 have had a command system update, and JTIDS (Link 16). Improved ammunition in Batch 2.
Structure: Torpedo tubes removed.
Operational: First of class paid off in 1999. *Cardiff* and *Newcastle* planned to pay off in 2007 and *Glasgow* in 2009, as the Type 45s enter service although the age of these ships means that they are increasingly expensive to maintain. All based at Portsmouth.

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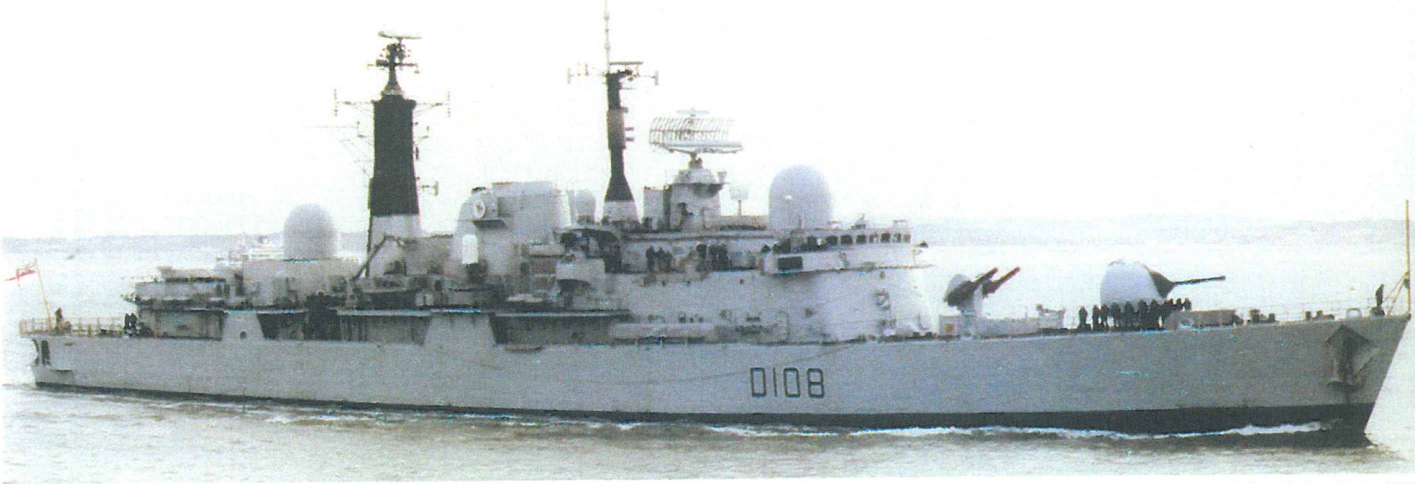
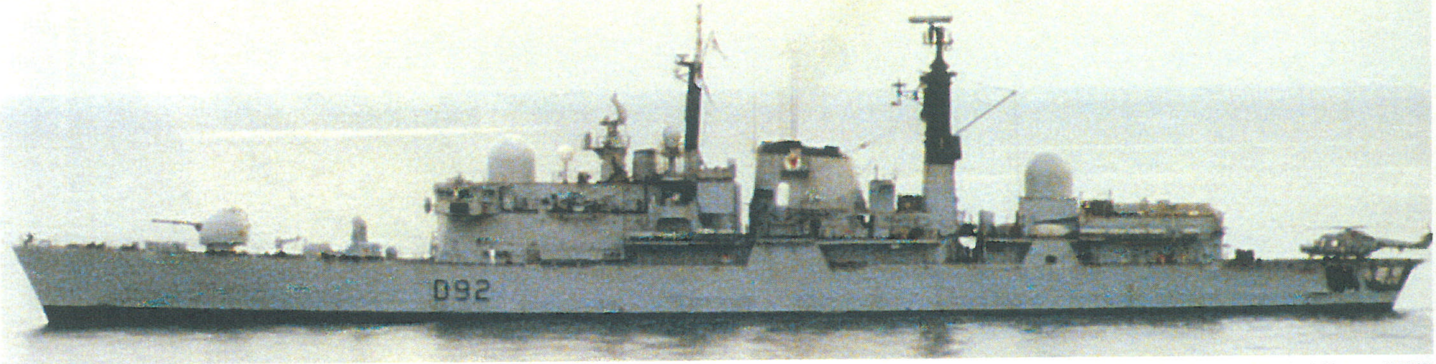


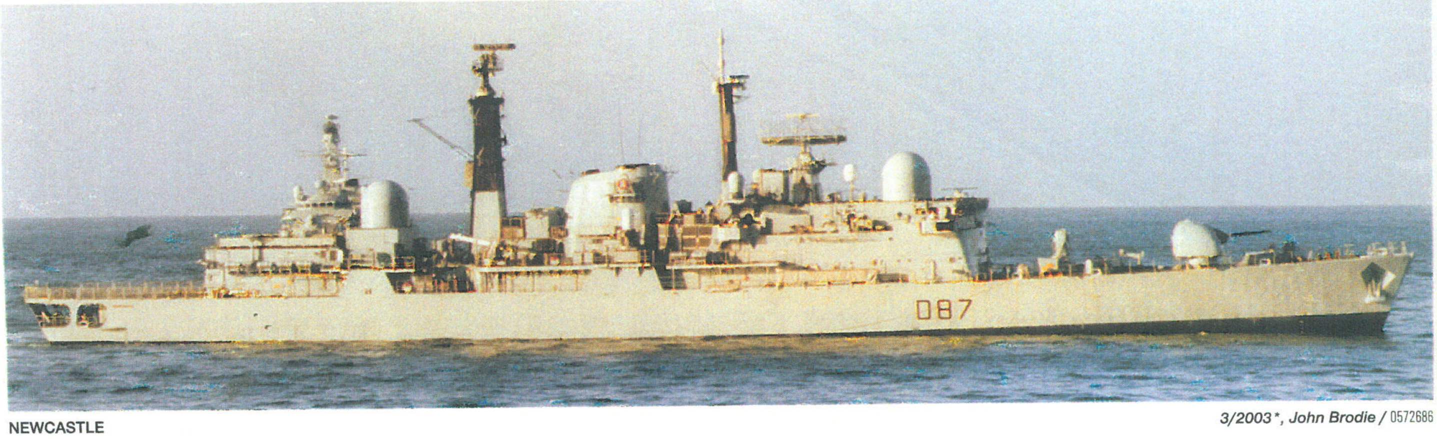
CARDIFF

10/2003, Derek Fox* / 0576462



LIVERPOOL

4/2003, A Sharma* / 0572685



NEWCASTLE

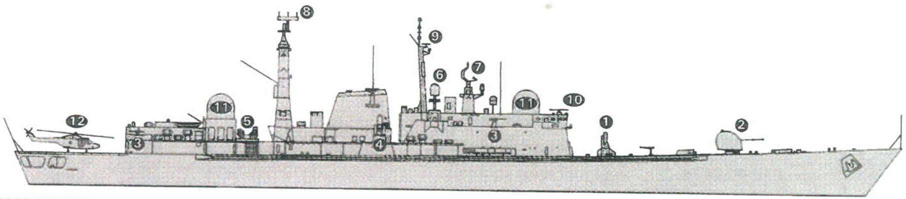
3/2003, John Brodie* / 0572686

4 TYPE 42 CLASS (BATCH 3) (DDGH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
MANCHESTER	D 95	Vickers Shipbuilding & Engineering, Barrow-in-Furness	19 May 1978	24 Nov 1980	16 Dec 1982
GLOUCESTER	D 96	Vosper Thornycroft, Woolston	29 Oct 1979	2 Nov 1982	11 Sep 1985
EDINBURGH	D 97	Cammell Laird, Birkenhead	8 Sep 1980	14 Apr 1983	17 Dec 1985
YORK	D 98	Swan Hunter Shipbuilders, Wallsend-on-Tyne	18 Jan 1980	21 June 1982	9 Aug 1985

Displacement, tons: 3,500 standard; 4,675 full load
Dimensions, feet (metres): 462.8 oa; 434 wl × 49.9 × 19 (screws) *(141.1; 132.3 × 15.2 × 5.8)*
Main machinery: COGOG; 2 RR Olympus TM3B gas turbines; 43,000 hp *(32 MW)* sustained; 2 RR Tyne RM1C gas turbines (cruising); 10,680 hp *(8 MW)* sustained; 2 shafts; cp props
Speed, knots: 30+. **Range, miles:** 4,000 at 18 kt
Complement: 287 (26 officers)

Missiles: SAM: British Aerospace Sea Dart twin launcher ❶; radar/semi-active radar guidance to 40 km *(21 n miles)*; warhead HE; 22 missiles; limited anti-ship capability.
Guns: 1 Vickers 4.5 in *(114 mm)*/55 Mk 8 ❷; 25 rds/min to 27 km *(14.6 n miles)* anti-surface; 6 km *(3.3 n miles)* anti-aircraft; weight of shell 21 kg. Mod 1 in D 98 by 2003.
4 Oerlikon/BEMARC 20 mm GAM-BO1 ❸; 1,000 rds/min to 2 km.
2 General Electric/General Dynamics 20 mm Vulcan Phalanx Mk 15 ❹; 6 barrels per launcher; 3,000 rds/min combined to 1.5 km.
Countermeasures: Outfit DLH; 4 Sea Gnat 130 mm/102 mm 6-barrelled launchers ❺. DLF-3 offboard decoys.
Type 2070 (SLQ-25A); towed torpedo decoy.
ESM: Racal Thorn UAT; intercept.
Combat data systems: ADAWS 20 Ed 2 action data automation. Matra Marconi SCOT 1C SATCOM ❻; Skynet 5 (from 2006); Links 10 and 11. JTIDS. Link 16.
Weapons control: GWS 30 Mod 2 (for SAM); GSA 1 secondary system. 2 Radamec 2100 series optronic surveillance directors.



MANCHESTER

(Scale 1 : 1,200), Ian Sturton / 0572735

Radars: Air search: Marconi/Signaal Type 1022 ❼; D-band.
Air/surface search: Plessey Type 996 ❽; E/F-band.
Navigation: Kelvin Hughes Type 1007 ❾; I-band and Racal Decca Type 1008 ❿; E/F-band.
Fire control: 2 Marconi Type 909 Mod 1 ⓫; I/J-band.
Sonars: Ferranti/Thomson Type 2050 or Plessey Type 2016; hull-mounted; active search and attack.

Helicopters: 1 Westland Lynx HMA.Mk 3/8 ⓬.

Programmes: The completion of the last three ships was delayed to allow for some modifications resulting from experience in the Falklands' campaign (1982).
Modernisation: Vulcan Phalanx replaced 30 mm guns 1987-89. D 97 had a partial conversion in 1990 with the Phalanx moved forward and a protective visor fitted around the bow of the ship but reverted to the standard armament in 1994. All have had a command system update. Sea Gnat decoy launchers can fire a variety of devices. JTIDS (Link 16) fitted in D 97 in 1996, followed by the remainder by 1999. D 98 conducted trials of a Sea Ram SAM launcher vice port side Phalanx in 2001. Mk 8 Mod 1 gun to be fitted in D 98 and D 97 from 2004. Demonstration firings of Active Decoy Round (ADR) in D 98 in 2003.
Structure: A strengthening beam has been fitted on each side which increased displacement by 50 tons and beam by 2 ft. Torpedo tubes removed.
Operational: The helicopter carries the Sea Skua air-to-surface weapon for use against lightly defended surface ship targets. Ships may be fitted with DEC laser dazzle sight, additional decoy flare launchers and optronic surveillance sights on operational deployments. Planned to pay off by 2014 as Type 45 enter service. Based at Portsmouth.

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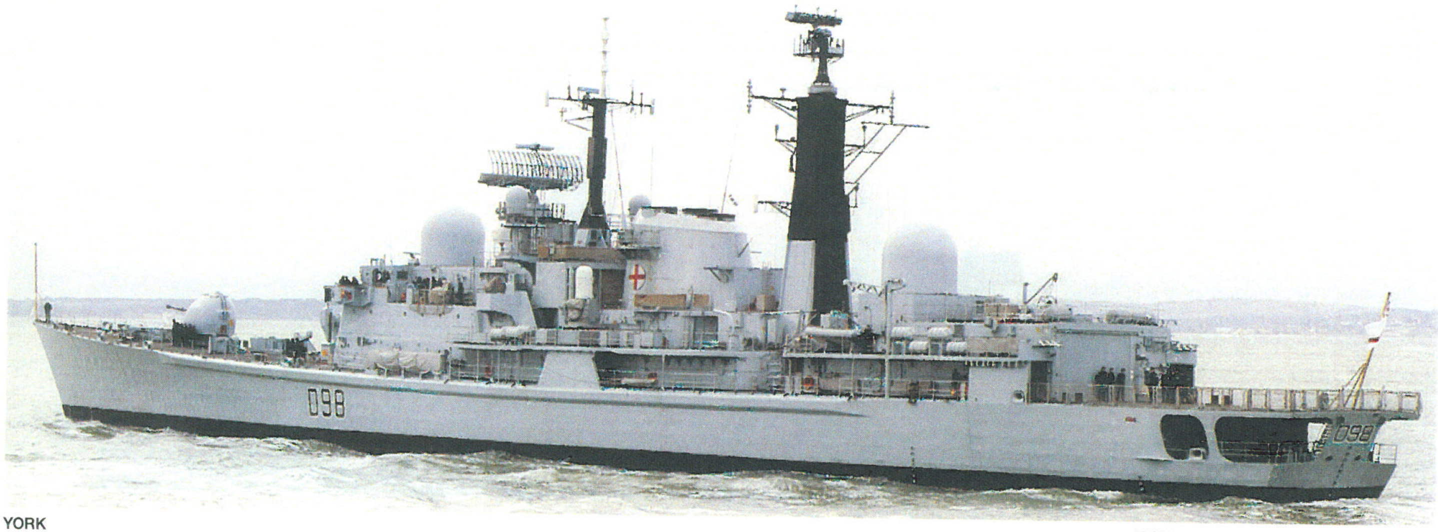

YORK

10/2003, Maritime Photographic* / 0576464

YORK

4/2003, A Sharma* / 0572684

MANCHESTER

5/2002, H M Steele* / 0572722

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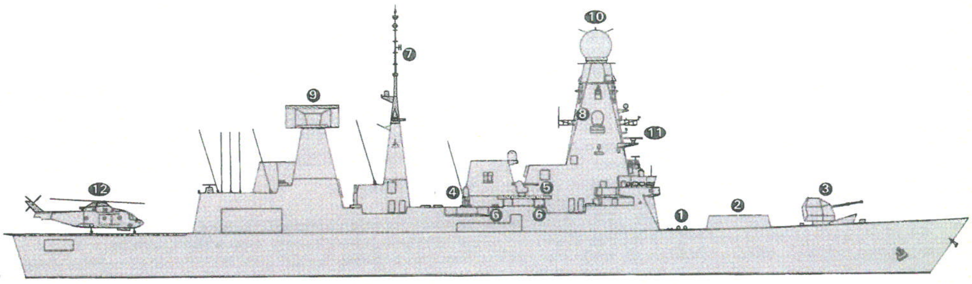
0 + 6 (6) D CLASS (TYPE 45) (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
DARING	D 32	BAE Systems Marine/Vosper Thornycroft	Mar 2003	Apr 2005	Nov 2007
DAUNTLESS	D 33	BAE Systems Marine/Vosper Thornycroft	2004	2007	2009
DIAMOND	D 34	BAE Systems Marine/Vosper Thornycroft	2004	2007	2009
DRAGON	D 35	BAE Systems Marine/Vosper Thornycroft	2005	2007	2010
DEFENDER	D 36	BAE Systems Marine/Vosper Thornycroft	2006	2008	2010
DUNCAN	D 37	BAE Systems Marine/Vosper Thornycroft	2006	2008	2011

Displacement, tons: 7,350 full load
Dimensions, feet (metres): 500.1 oa; 462.9 wl × 69.6 × 17.4 *(152.4; 141.1 × 21.2 × 5.3)*
Main machinery: Integrated Electric Propulsion; 2 RR WR-21 gas turbine alternators; 42 MW; 2 diesel generators; 4 MW; 2 motors; 40 MW; 2 shafts; fixed props
Speed, knots: 29. **Range, miles:** 7,000 at 18 kt
Complement: 187 plus 38 spare

Missiles: SSM: Space for 8 Harpoon (2 quad) ①.
SAM: 6 DCN Sylver A 50 48 cell VLS ② PAAMS (principal anti-air missile system); 16 Aster 15 and 32 Aster 30 weapons or combination.
Guns: 1 Vickers 4.5 in *(114 mm)*/55 Mk 8 Mod 1 ③.
2—20 mm Vulcan Phalanx (fitted for both not with) ④. 2—30 mm ⑤.
Countermeasures: Decoys: 4 DLH (chaff, IR); DLF offboard decoys; ⑥. SSTD torpedo defence system.
ECM: to be decided.
RESM: Thales Type UAT (mod) ⑦; intercept.
CESM: to be decided.
Combat data systems: SSCS-21 (based on DNA SSCS with additional AAW functions); Links 11, 16 STDL and 22. SATCOM ⑧. CEC to be fitted.
Weapons control: 2 EOGCS (based on Radamec 2500).
Radars: Air/surface search: Signaal/Marconi S1850M ⑨; D-band.
Surveillance/fire control: BAE Systems Sampson ⑩; E/F-band; multifunction.
Surface search ⑪. E/F-band.
Navigation: E/F- and I-band.
Sonars: ULTRA MFS-7000; bow mounted; medium frequency.

Helicopters: Lynx Mk 8 HMA (first batch) or Merlin HM.Mk 1 ⑫.



DARING

(Scale 1 : 1,200), Ian Sturton / 0131365

Programmes: This project has gone through many stages, the result of which has been slippage of the originally envisaged in-service date of 2000 to 2007 and the concomitant extension of the ship-lives of the ageing Type 42s. Starting life as NFR 90 in the 1980s, it was taken forward via the Anglo-French Future Frigate, the tri-nation Common New Generation Frigate (Horizon) and finally, when UK withdrew from the collaborative ship programme on 25 April 1999, a national Type 45 ship project. The contract for the design and build of the first three ships was placed with the prime contractor, BAE Systems Electronics, on 20 December 2000. Following extensive consultation this was amended in late 2001 to reflect a new procurement strategy in which commitment was made to the first six ships. Vosper Thornycroft is to build and outfit the forward section of each ship together with the masts and funnel. The remainder of the ship will be built by BAE Marine. First steel of *Daring* cut at Govan on 28 March 2003. Final assembly is to start at Scotstoun in late 2004 where follow-on ships will also be completed. Stage I trials are to be conducted by the final assembly shipyard and Stage II trials by BAE Systems. Procurement of the missile system is being pursued separately and a contract for full development and initial production of PAAMS was placed with the tri-national consortium, EUROPAAMS, in August 1999. Test firings are to be conducted from the trials barge *Longbow* from 2005.

Structure: Built to Lloyd's Naval Ship Rules. Provision for future installation of 155 mm gun or a 16-cell VLS silo, SSM, CIWS and magazine-launched torpedoes. An integrated technology mast is another potential modification. The ships are designed to support and deploy at least 30 troops. OTC facilities are to be included. A land-attack capability for D 35-37 is under consideration.

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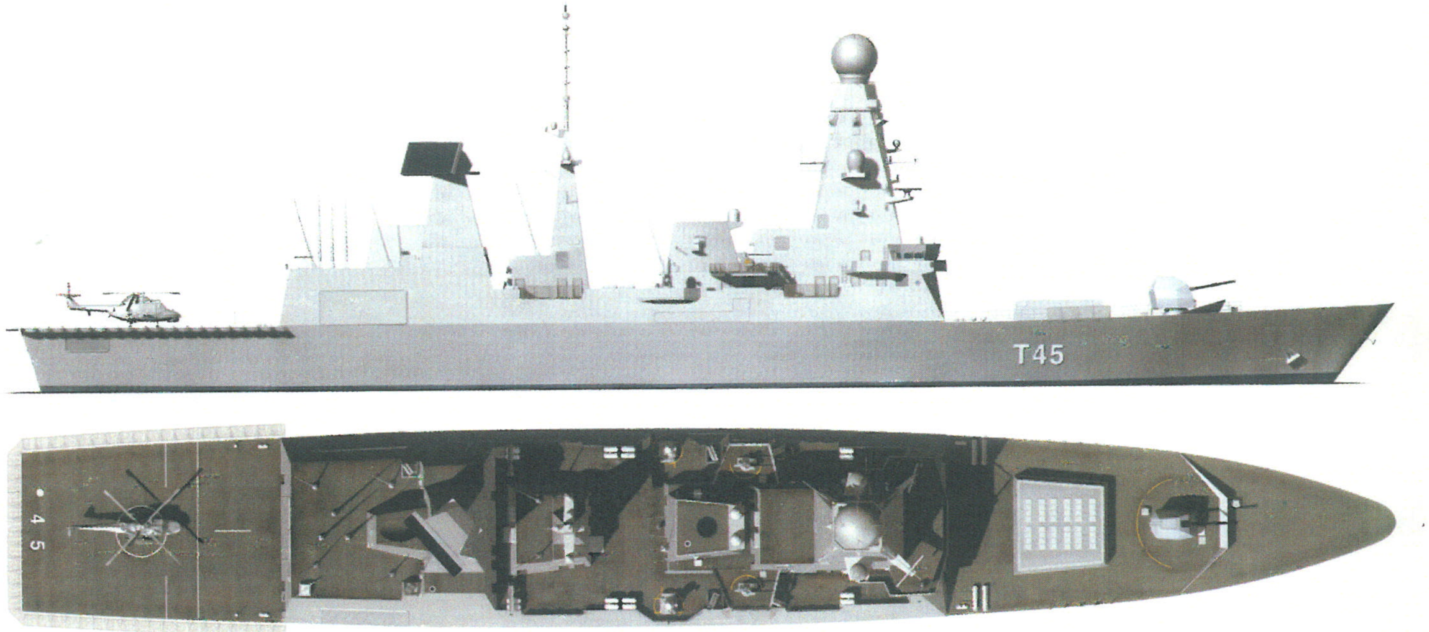

DARING (computer graphic)

9/2002, BAE Systems / 0523834

FRIGATES

Notes: Plans for a future class of warships to enter service from 2015, when the 'Type 23' class start leaving service, are being taken forward through the Future Surface Combatant (FSC) programme. A class of eighteen ships forms the planning assumption and potential capabilities include anti-submarine warfare, land-attack, homeland defence and in-stride mine countermeasures. Design options include a monohull or trimaran single class and a 'Type 45' derivative; other concepts such as a mixture of large/small ships are also being considered. Initial Gate approval to initiate the Assessment phase is planned in 2004 to be followed by Main Gate decisions in 2008.

CHATHAM

10/2003, Maritime Photographic* / 0576463

4 BROADSWORD CLASS (TYPE 22 BATCH 3) (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
CORNWALL	F 99	Yarrow Shipbuilders, Glasgow	14 Dec 1983	14 Oct 1985	23 Apr 1988
CUMBERLAND	F 85	Yarrow Shipbuilders, Glasgow	12 Oct 1984	21 June 1986	10 June 1989
CAMPBELTOWN	F 86	Cammell Laird, Birkenhead	4 Dec 1985	7 Oct 1987	27 May 1989
CHATHAM	F 87	Swan Hunter Shipbuilders, Wallsend-on-Tyne	12 May 1986	20 Jan 1988	4 May 1990

Displacement, tons: 4,200 standard; 4,900 full load
Dimensions, feet (metres): 485.9 × 48.5 × 21 *(148.1 × 14.8 × 6.4)*
Main machinery: COGOG; 2 RR Spey SM1A gas turbines; 29,500 hp *(22 MW)* sustained; 2 RR Tyne RM3C gas turbines; 10,680 hp *(8 MW)* sustained; 2 shafts; LIPS; cp props
Speed, knots: 30; 18 on Tynes
Range, miles: 4,500 at 18 kt on Tynes
Complement: 250 (31 officers) (accommodation for 301)

Missiles: SSM: 8 McDonnell Douglas Harpoon Block 1C (2 quad) launchers ❶; preprogrammed; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.
SAM: 2 British Aerospace Seawolf GWS 25 Mod 3 ❷; command line of sight (CLOS) with 2 channel radar tracking to 5 km *(2.7 n miles)* at 2+ Mach; warhead 14 kg.
Guns: 1 Vickers 4.5 in *(114 mm)*/55 Mk 8 ❸; 25 rds/min to 22 km *(11.9 n miles)*; 27.5 km *(14.8 n miles)* Mod 1 anti-surface; 6 km *(3.3 n miles)* anti-aircraft; weight of shell 21 kg.
1 Signaal/General Electric 30 mm 7-barrelled Goalkeeper ❹; 4,200 rds/min combined to 1.5 km.
2 DES/MSI DS 30B 30 mm/75 ❺; 650 rds/min to 10 km *(5.5 n miles)*; weight of shell 0.36 kg and/or 2 Oerlikon 20 mm.
Torpedoes: 6—324 mm Plessey STWS Mk 2 (2 triple) tubes ❻. Marconi Stingray; active/passive homing to 11 km *(5.9 n miles)* at 45 kt; warhead 35 kg shaped charge.
Countermeasures: Decoys: Outfit DLH; 4 Sea Gnat 6-barrelled 130 mm/102 mm fixed launchers ❼.
Graseby Type 182 or SLQ-25A; towed torpedo decoy.
RESM: Racal Thorn UAT 1; intercept.
CESM: CoBLU; intercept.
Combat data systems: CACS 5 action data automation; Link 11. 2 Matra Marconi SCOT 1C SATCOMs ❽. ICS-3 integrated comms. Marisat. JMICS being fitted.
Weapons control: 2 BAe GSA 8B GPEOD Sea Archer optronic directors with TV and IR imaging and laser rangefinders ❾. GWS 25 Mod 3 (for SAM). GWS 60.
Radars: Air/surface search: Marconi Type 967/968 ❿; D/E-band.
Surface search: Racal Decca Type 2008; E/F-band; being fitted.
Navigation: Kelvin Hughes Type 1007; I-band.
Fire control: 2 Marconi Type 911 ⓫; I/Ku-band (for Seawolf).
Sonars: Ferranti/Thomson Sintra Type 2050; hull-mounted; active search and attack.
Dowty Type 2031; towed array; passive search; very low frequency.

Helicopters: 2 Westland Lynx HMA. Mk 3/8 ⓬.

Modernisation: Sonar 2016 replaced by Sonar 2050. EW fit updated and Sea Gnat is the standard launcher for a variety of distraction and seduction decoys. EDS Command Support System fitted by 2008. A major upgrade to the Seawolf system to be implemented from 2006; a rolling installation programme is planned to be completed by 2011. Enhancements include an improved I-band radar, an additional optronic tracker to improve low level performance and improved software. In a separate contract, the Mk 4 SWELL (Seawolf Enhanced Low Level) fuze is being incorporated in existing rounds from 2002 and in Block 2 missiles from 2005. Mk 8 Mod 1 gun fitted in F 85 and to rest of ships in due course.
Structure: Batch 3 are stretched versions of original Batch 1. Flight decks enlarged to operate Sea King helicopters.
Operational: This class is primarily designed for ASW operations and is capable of acting as OTC. All have facilities for Flag and staff. One Lynx normally embarked. Ships are fitted with DEC laser dazzle device, and additional EW equipment mounted forward of the foremast, on operations. All are based at Devonport.
Sales: All Batch 1 to Brazil. Batch 2 ships *London* and *Coventry* to *Romania* and *Sheffield* to Chile.

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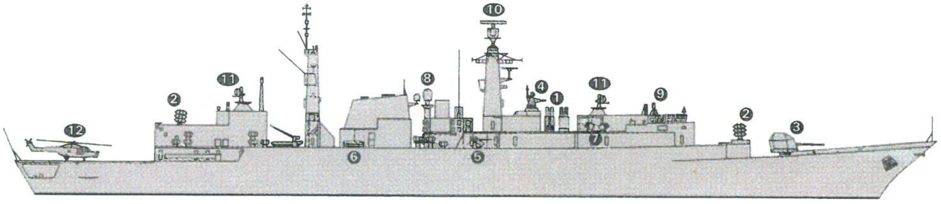
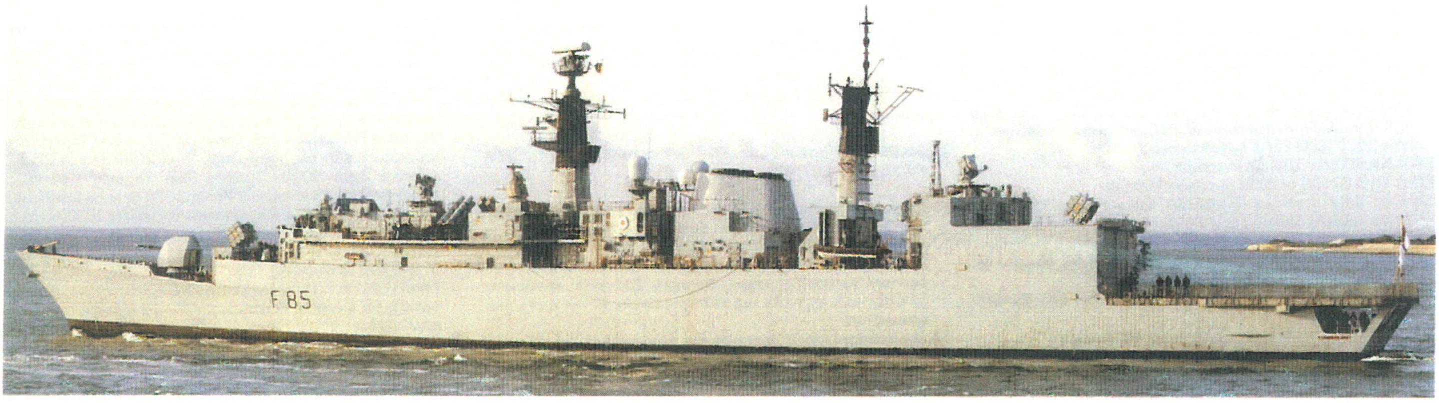


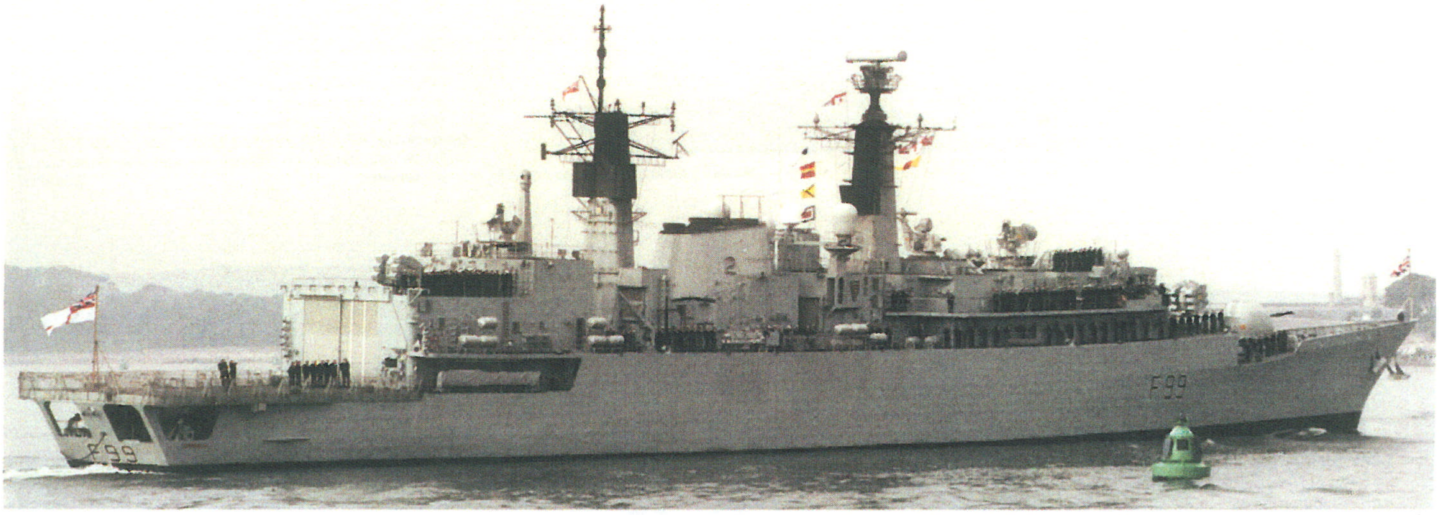
CORNWALL

(Scale 1 : 1,200), Ian Sturton / 0572734



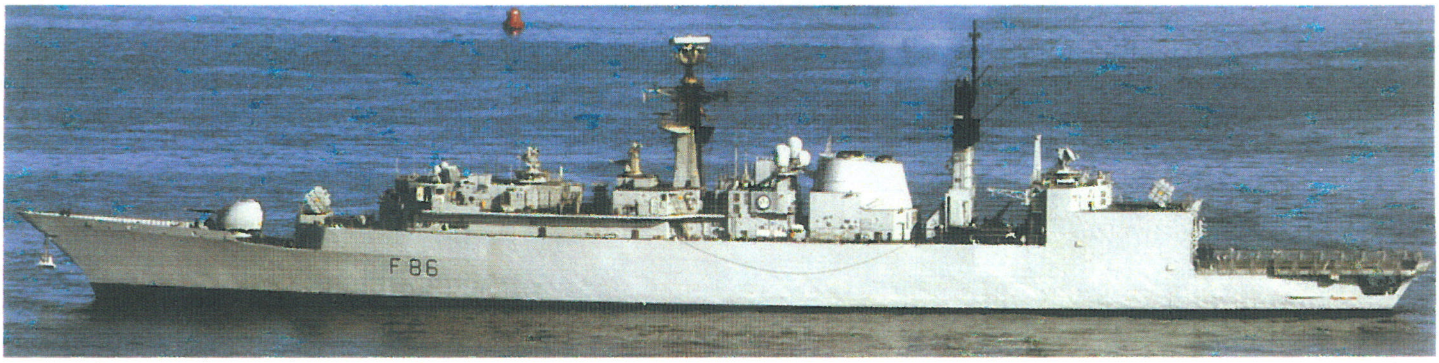
CUMBERLAND

10/2003, Maritime Photographic* / 0572726



CORNWALL

3/2002, John Brodie / 0530028



CAMPBELTOWN

7/2003, B Sullivan* / 0572727

16 DUKE CLASS (TYPE 23) (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
NORFOLK	F 230	Yarrow Shipbuilders, Glasgow	14 Dec 1985	10 July 1987	1 June 1990
ARGYLL	F 231	Yarrow Shipbuilders, Glasgow	20 Mar 1987	8 Apr 1989	31 May 1991
LANCASTER	F 229 (ex-F 232)	Yarrow Shipbuilders, Glasgow	18 Dec 1987	24 May 1990	1 May 1992
MARLBOROUGH	F 233	Swan Hunter Shipbuilders, Wallsend-on-Tyne	22 Oct 1987	21 Jan 1989	14 June 1991
IRON DUKE	F 234	Yarrow Shipbuilders, Glasgow	12 Dec 1988	2 Mar 1991	20 May 1993
MONMOUTH	F 235	Yarrow Shipbuilders, Glasgow	1 June 1989	23 Nov 1991	24 Sep 1993
MONTROSE	F 236	Yarrow Shipbuilders, Glasgow	1 Nov 1989	31 July 1992	2 June 1994
WESTMINSTER	F 237	Swan Hunter Shipbuilders, Wallsend-on-Tyne	18 Jan 1991	4 Feb 1992	13 May 1994
NORTHUMBERLAND	F 238	Swan Hunter Shipbuilders, Wallsend-on-Tyne	4 Apr 1991	4 Apr 1992	29 Nov 1994
RICHMOND	F 239	Swan Hunter Shipbuilders, Wallsend-on-Tyne	16 Feb 1992	6 Apr 1993	22 June 1995
SOMERSET	F 82	Yarrow Shipbuilders, Glasgow	12 Oct 1992	25 June 1994	20 Sep 1996
GRAFTON	F 80	Yarrow Shipbuilders, Glasgow	13 May 1993	5 Nov 1994	29 May 1997
SUTHERLAND	F 81	Yarrow Shipbuilders, Glasgow	14 Oct 1993	9 Mar 1996	4 July 1997
KENT	F 78	Yarrow Shipbuilders, Glasgow	16 Apr 1997	27 May 1998	8 June 2000
PORTLAND	F 79	Yarrow Shipbuilders, Glasgow	14 Jan 1998	15 May 1999	3 May 2001
ST ALBANS	F 83	Yarrow Shipbuilders, Glasgow	18 Apr 1999	6 May 2000	6 June 2002

Displacement, tons: 3,500 standard; 4,200 full load
Dimensions, feet (metres): 436.2 × 52.8 × 18 (screws); 24 (sonar) *(133 × 16.1 × 5.5; 7.3)*
Main machinery: CODLAG; 2 RR Spey SM1A (F 229-F 236) or SM1C (F 237 onwards) gas turbines (see *Structure*); 31,100 hp *(23.2 MW)* sustained; 4 Paxman 12CM diesels; 8,100 hp *(6 MW)*; 2 GEC motors; 4,000 hp *(3 MW)*; 2 shafts
Speed, knots: 28; 15 on diesel-electric
Range, miles: 7,800 miles at 15 kt
Complement: 181 (13 officers)

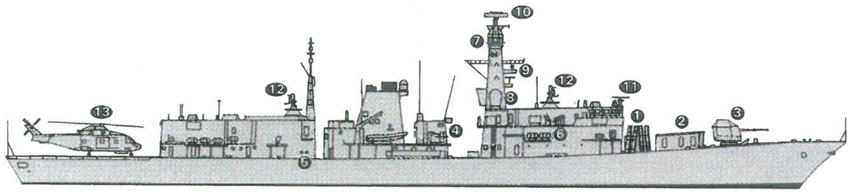
Missiles: SSM: 8 McDonnell Douglas Harpoon (2 quad) launchers ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg (84C). 4 normally carried.
SAM: British Aerospace Seawolf GWS 26 Mod 1 VLS ❷; command line of sight (CLOS) radar/TV tracking to 6 km *(3.3 n miles)* at 2.5 Mach; warhead 14 kg; 32 canisters.
Guns: 1 Vickers 4.5 in *(114 mm)*/55 Mk 8 ❸; 25 rds/min to 22 km *(11.9 n miles)*; 27.5 km *(14.8 n miles)* Mod 1 anti-surface; 6 km *(3.3 n miles)* anti-aircraft; weight of shell 21 kg. Mk 8 Mod 1 being progressively fitted; installations in F 230, F 233-236 completed by 2003.
2 DES/MSI DS 30B 30 mm/75 ❹; 650 rds/min to 10 km *(5.4 n miles)* anti-surface; 3 km *(1.6 n miles)* anti-aircraft; weight of shell 0.36 kg.
Torpedoes: 4 Cray Marine 324 mm fixed (2 twin) tubes ❺. Marconi Stingray; active/passive homing to 11 km *(5.9 n miles)* at 45 kt; warhead 35 kg (shaped charge); depth to 750 m *(2,460 ft)*. Automatic reload in 9 minutes.
Countermeasures: Decoys: Outfit DLH; 4 Sea Gnat 6-barrelled 130 mm/102 mm launchers ❻. DLF 2/3 offboard decoys.
Type 2070 (SLQ-25A); towed torpedo decoy.
ESM: Racal Thorn UAT ❼; intercept.
ECM: Type 675(2) or Racal Scorpion; jammer.
Combat data systems: BAeSEMA Surface Ship Command System (DNA); Links 11 and JTIDS 16 in due course. 2 Matra Marconi SCOT 1D SATCOMs ❽.
Weapons control: BAe GSA 8B/GPEOD optronic director ❾. GWS 60 (for SSM). GWS 26 (for SAM).
Radars: Air/surface search: Plessey Type 996(I) ❿; 3D; E/F-band.
Surface search: Racal Decca Type 1008 ⓫; E/F-band.
Navigation: Kelvin Hughes Type 1008; I-band.
Fire control: 2 Marconi Type 911 ⓬; I/Ku-band.
IFF: 1010/1011.

NORTHUMBERLAND
10/2003, Derek Fox* / 0572683

Sonars: Ferranti/Thomson Sintra Type 2050; bow-mounted; active search and attack.
Dowty Type 2031Z (F 229-F 239); towed array; passive search; very low frequency. To be replaced by Type 2087 from 2008; active low-frequency towed body with a passive array.

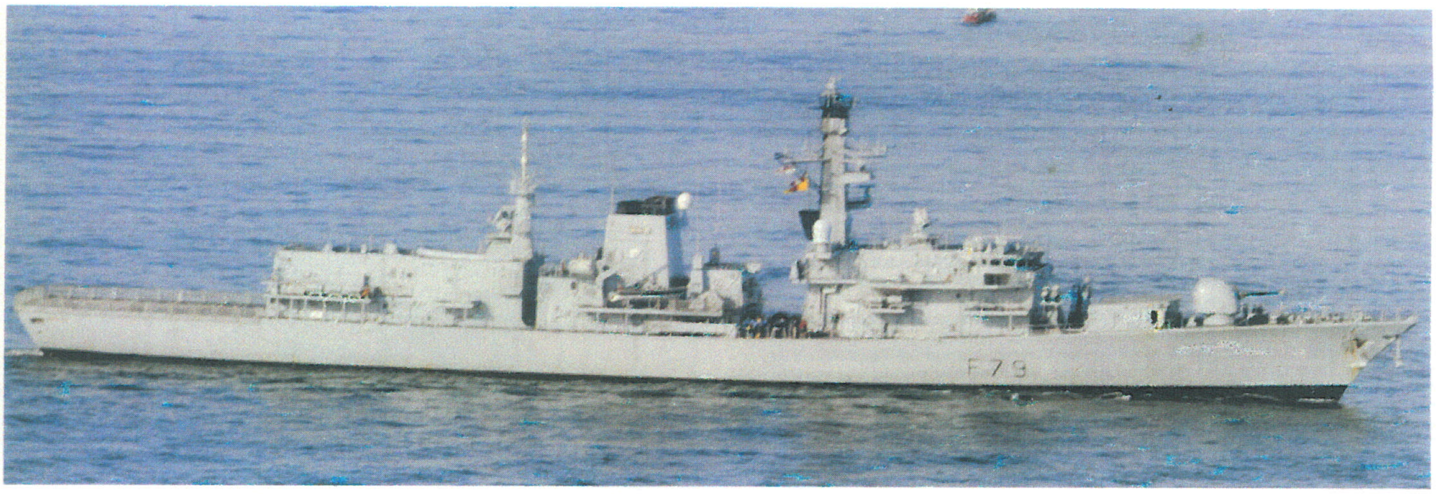
Helicopters: 1 Westland Lynx HMA 3/8 or 1 Merlin HM 1 (F 229, F 235 and F 237) ⓭.

Programmes: The first of this class was ordered from Yarrows on 29 October 1984. Further batches of three ordered in September 1986, July 1988, December 1989, January 1992 and February 1996. Further orders are unlikely. F 229 pennant number changed, because 232 was considered unlucky, as it is the RN report form number for collisions and groundings.
Modernisation: Major improvement programmes are planned. The Command System has been upgraded to Phase 5 software and a contract for further enhancements to integrate Type 2087 sonar and Outfit DLH was placed with AMS in 2003. The Mk 8 Mod 1 gun is to be installed in the whole class. Modifications to improve the performance of Type 966 radar are being made. The Seawolf system will be upgraded from 2006-2011; enhancements include improved I-band radar, an additional optronic tracker to improve low level performance and improved software. In a separate contract the Mk 4 SWELL (Seawolf Enhanced Low Level) fuze is being incorporated in existing rounds from 2002 and in Block 2 missiles from 2005. Surface Ship Torpedo Defence, a development of the existing Sonar 2070, is to be fitted in due course. Co-operative Engagement Capability (CEC) is to be fitted in seven ships from 2008. Low Frequency Active Sonar (Type 2087) is to be fitted, initially in six 2031 fitted ships (F 237 first to be fitted), from 2008. Following trials in F 229, Merlin HM1 is to be embarked in six ships. Studies to examine options for a further major capability upgrade are to begin in late 2004.
Structure: Incorporates stealth technology to minimise acoustic, magnetic, radar and IR signatures. The design includes a 7° slope to all vertical surfaces, rounded edges, reduction of IR emissions and a hull bubble system to reduce radiated noise. The combined diesel electric and GT propulsion system provides quiet motive power during towed sonar operations. The SM1C engines although capable of 41 MW of power combined are constrained by output into the gearbox. MacTaggart Scott Helios helo landing system. SSCS (DNA 1) software Phase II installed in *Westminster* on build and retrofitted in earlier ships. Subsequent Phases III to V fitted on build to all the later ships with full capability introduced from 1997. The Type 2031 towed array is fitted in the first 10 ships.
Operational: F 78, F 80, F 83, F 229, F 233, F 234, F 237 and F 239 are based at Portsmouth and the remainder, at Devonport.
UPDATED

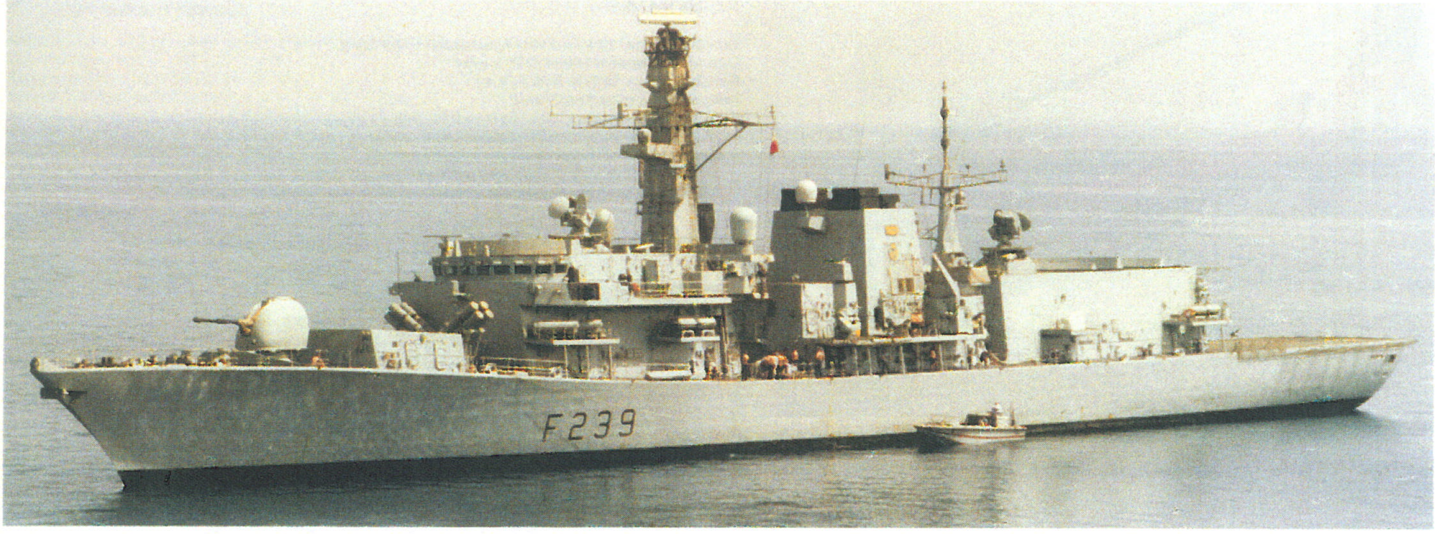


MARLBOROUGH
(Scale 1 : 1,200), Ian Sturton / 0530055

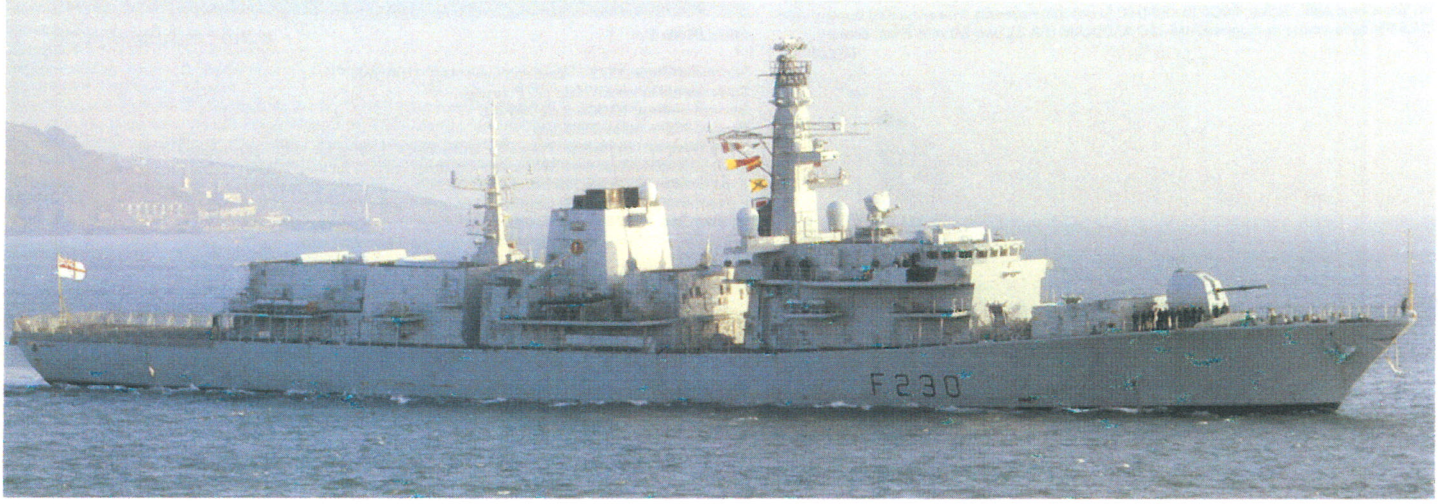
LANCASTER
10/2003, Maritime Photographic* / 0572724



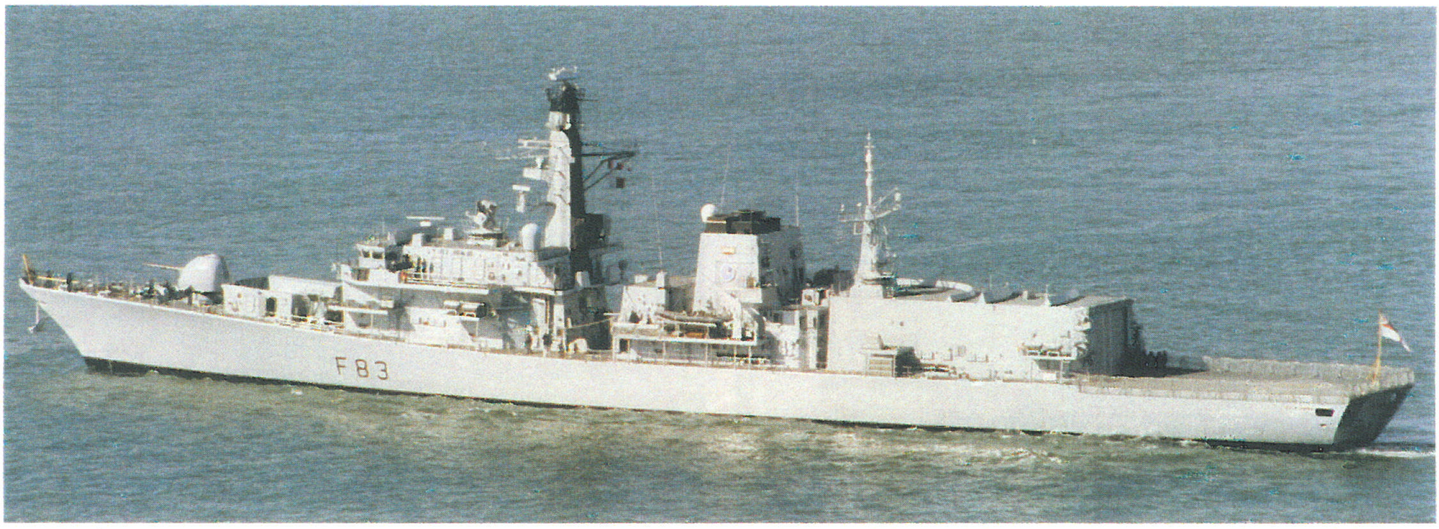
PORTLAND *7/2003*, B Sullivan* / 0572723



RICHMOND *4/2003*, A Sharma* / 0572681



NORFOLK *3/2003*, H M Steele* / 0572725



ST ALBANS *3/2003*, John Brodie* / 0572682

SHIPBORNE AIRCRAFT

Notes: (1) The STOVL (short take-off and landing) variant of the Lockheed Martin F-35 Joint Strike Fighter selected on 30 September 2002 to fulfil the Future Joint Combat Aircraft requirement. The aircraft is to replace the RAF/RN aircraft operated by the Joint Force Harrier for operation both from the future carriers and from land bases. There are 150 aircraft planned, first delivery of which is expected in 2008 to meet an in-service date of 2012.
(2) Sea Harrier to be phased out between 2004 and 2006. Harrier force to migrate to an all GR force. 20 GR.7 aircraft upgraded to GR.7A standard (re-engined with Pegasus Mk.107) for carrier operations by 2004 and a further 10 by 2005. In parallel, 68 GR.7 and GR.7A and 12 T.10 aircraft to receive an avionics and weapons upgrade to GR.9/GR.9A/T.12 standard by 2006.
(3) A programme to replace the current organic airborne early-warning capability in 2012 is in progress. Initial Gate for The Maritime Airborne Surveillance and Control (MASC) programme is planned in early 2005 with Main Gate decisions to follow in December 2008. Potential solutions are likely to be based on rotary-wing platforms and UAVs.
(4) Future Lynx, a development of the Super Lynx 300, is being assessed as a potential common solution to both the Navy's Surface Combatant Maritime Rotorcraft (SCMR) and the Army's Battlefield Light Utility Helicopter (BLUH) programmes. A development of the Agusta-Westland Super Lynx 300, Future Lynx would have a new airframe, more powerful engines and improved avionics. Main Gate approval is to be sought in mid-2004 for an in service date of 2011/12. About 40 aircraft are envisaged.
(5) Dauphin 2 helicopters with Royal Naval markings are leased by FOST for staff transfers. Painted red.

ZJ165
ROYAL NAVY

DAUPHIN 2 *1/2003, A Sharma* / 0530023

Numbers/Type: 22/4 British Aerospace Sea Harrier FA 2/T 8.
Operational speed: 540 kt *(1,000 km/h).*
Service ceiling: 45,000 ft *(13,716 m).*
Range: 800 n miles *(1,480 km).*
Role/Weapon systems: Air defence, ground attacks, reconnaissance and maritime attack. Sensors: Blue Vixen radar, GEC-Marconi Sky Guardian ESM, ALE 40 chaff/IR flares, camera, IFF Mk 12. Weapons: ASV. Strike; 1,000 lb and 540 lb bombs; Paveway II laser-guided bombs. AD; four AIM-9M Sidewinder or Hughes AIM-120 AMRAAM (FA 2); two 30 mm Aden cannon.

UPDATED

ROYAL NAVY
712

SEA HARRIER FA 2 *7/2003*, Paul Jackson* / 0572728

Numbers/Type: 20 British Aerospace Harrier GR.7A.
Operational speed: 575 kt *(1,065 km/h).*
Service ceiling: 45,000 ft *(13,716 m).*
Range: 594 n miles *(1,101 km).*
Role/Weapon systems: RAF all weather single-seat close support, battlefield interdiction night attack and reconnaissance aircraft, first operated from HMS *Illustrious* in 1994. Sensors: FLIR, TIALD, VICON recce pod, ESM, ECM and chaff dispensers. Weapons: AAM; 2 or 4 AIM-9L Sidewinder. Ground attack: 'iron' bombs, Paveway II LGM, CRV-7 rocket pods.

UPDATED

HARRIER GR. 7A *10/2002, BAE Systems* / 0523512

Numbers/Type: 43 Westland/Agusta Merlin HM Mk 1.
Operational speed: 160 kt *(296 km/h).*
Service ceiling: 15,000 ft *(4,572 m).*
Range: 550 n miles *(1,019 km).*
Role/Weapon systems: Primary anti-submarine role with secondary anti-surface and troop-carrying capabilities. Contract for 44 signed 9 October 1991. First four in service in late 1998. Sensors: GEC-Marconi Blue Kestrel 5000 radar, Thomson Marconi Flash AQS 960 dipping sonar, GEC-Marconi sonobuoy acoustic processor AQS-903, Racal Orange Reaper ESM, ECM. Weapons: ASW; four Stingray torpedoes or Mk 11 Mod 3 depth bombs. ASV; OTHT for ship-launched SSM.

UPDATED

MERLIN HM Mk 1 *10/2003*, B Sullivan* / 0572694

Numbers/Type: 22 Westland/Agusta Merlin HM Mk 3.
Operational speed: 160 kt *(296 km/h).*
Service ceiling: 15,000 ft *(4,572 m).*
Range: 550 n miles *(1,019 km).*
Role/Weapon systems: Operated by RAF. Roles include cargo and troop transport and combat SAR. Military lift is 28 troops and up to four tonnes underslung. Sensors: integrated defensive aids including Raytheon laser detection, BAE Systems Sky Guardian 2000 RWR, Doppler-based MAWS, Northrop Grumman AN/AAQ-24 Nemesis DIRCM and BAE Systems North America AN/ALE-47 chaff/flare dispensers. Weapons: machine guns.

NEW ENTRY

MERLIN Mk 3 *6/2003*, Paul Jackson* / 0572697

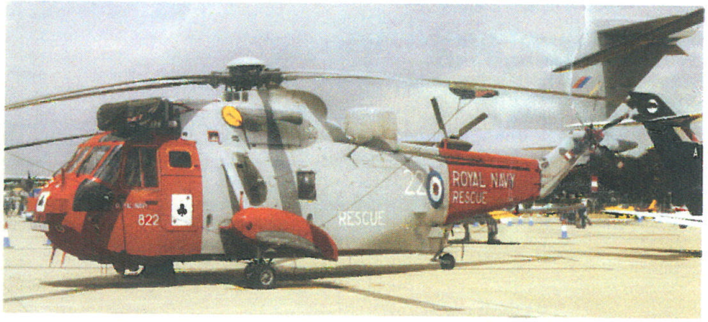
Numbers/Type: 21/27 Westland Lynx HAS 3/HMA 8.
Operational speed: 120 kt *(222 km/h).*
Service ceiling: 10,000 ft *(3,048 m).*
Range: 320 n miles *(593 km).*
Role/Weapon systems: Primarily anti-surface helicopter with short-range ASW capability; embarked in all modern RN escorts. Contract in 2001 for new Thales tactical situation displays to be fitted in all. 19 aircraft fitted with night vision goggles; all to be fitted in due course. All aircraft receiving a Saturn radio upgrade. Sensors: Ferranti Sea Spray Mk 1 radar, 'Orange Crop' ESM, chaff and flare dispenser. Weapons: ASW; two Stingray torpedoes or Mk 11 Mod 3 depth bombs. ASV; four Sea Skua missiles; two 12.7 mm MG pods.

UPDATED

LYNX HMA 8 *3/2003*, A Sharma* / 0572680

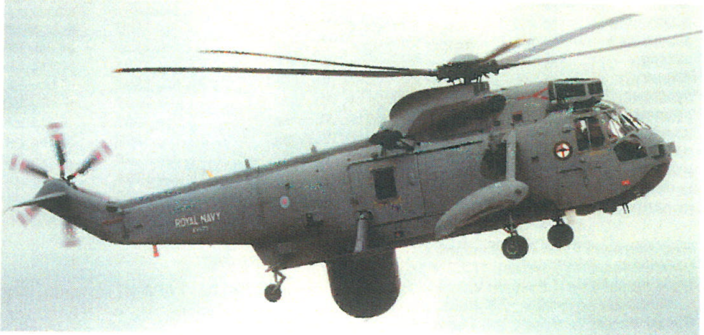
LYNX HAS 3 *7/2003*, Paul Jackson* / 0572730

Numbers/Type: 10/4 Westland Sea King HU Mk 5/HAS Mk 6.
Operational speed: 112 kt *(207 km/h).*
Service ceiling: 10,000 ft *(3,050 m).*
Range: 400 n miles *(925 km).*
Role/Weapon systems: ASW capability removed from all Sea King HAS Mk 5 and 6 variants. Six converted to Commando role (similar performance to HC 4). Remaining aircraft employed in SAR role and two Mk 6 flights formed to provide support to the CVs. Programme underway to convert all Mk 5 aircraft to night vision goggles for SAR. Sensors: Sea Searcher radar, Orange Crop ESM (Mk 6 only). Weapons: Both the Mk 5 and 6 can be fitted with the 7.62 mm MGs. Mk 6 able to carry torpedoes and depth charges. ***UPDATED***



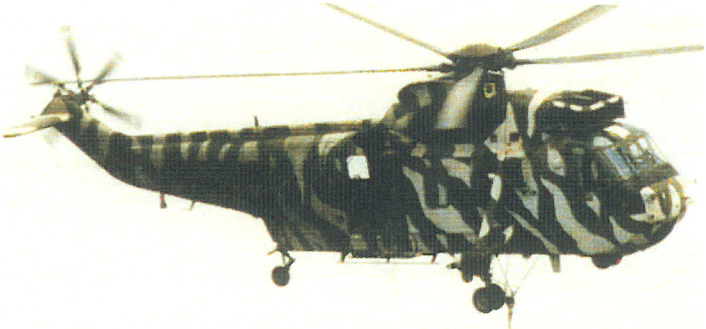
SEA KING HU Mk 5 *7/2003*, Paul Jackson* / 0572729

Numbers/Type: 13 Westland Sea King ASAC Mk 7.
Operational speed: 112 kt *(207 km/h).*
Service ceiling: 10,000 ft *(3,050 m).*
Range: 400 n miles *(925 km).*
Role/Weapon systems: Primary role Airborne Surveillance and Control (ASaC), with capability for littoral and strike operations. Conversion contract awarded in October 1996 to upgrade AEW Mk 2 Fleet to ASAC Mk 7. Programme to be completed mid-2004. Two aircraft lost in Iraq conflict to be replaced by 2006. Sensors: Racal Thorn Searchwater 2000, Racal MIR-2 'Orange Crop' ESM, IFF Mk XII, Litton 100g navigation system and JTIDS/Link 16. Weapons: None. ***UPDATED***



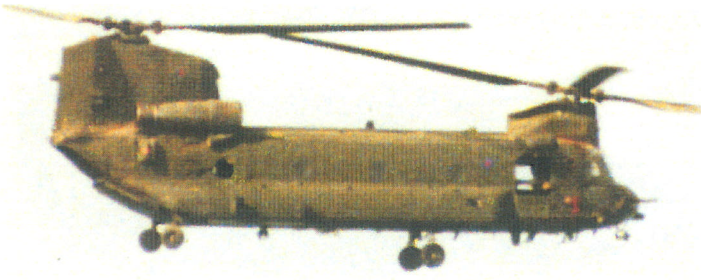
SEA KING ASAC 7 *6/2000, H M Steele* / 0131244

Numbers/Type: 29 Westland Sea King HC Mk 4.
Operational speed: 112 kt *(208 km/h).*
Service ceiling: 10,000 ft *(3,050 m).*
Range: 664 n miles *(1,230 km).*
Role/Weapon systems: 24 commando support and five training/special task helicopters; capable of carrying most Commando Force equipment underslung. Expected to remain in service to 2010. Engines of 10 aircraft upgraded in 2003 to improve hot weather performance. Six HAS 6 ASW aircraft undergoing conversion to Mk 6C commando assault configuration. Sensors: Prophet 2 plus AAR-47 ESM; jammer, chaff and IR flares ECM. Weapons: Can fit 7.62 mm GPMG or similar. ***UPDATED***



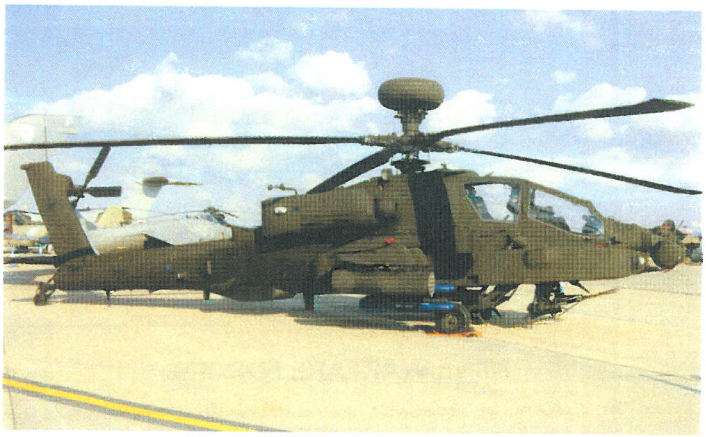
SEA KING HC 4 *3/2003*, A Sharma* / 0572679

Numbers/Type: 35/6/8 Boeing Chinook HC Mk 2/HC Mk 2A/HC Mk 3.
Operational speed: 140 kt *(259 km/h).*
Service ceiling: 10,140 ft *(3,090 m).*
Range: 651 n miles *(1,207 km).*
Role/Weapon systems: All-weather medium-lift helicopter equivalent to CH-47D and operated by RAF. Operable from surface ships (CVS/LPH/LPD/LSL). Mk 2/2A capable of carrying 44 troops and up to ten tonnes cargo. Mk 3 is Special Forces version. Sensors: defensive aids suite including missile approach warning, IR jammers and chaff/flare dispensers. Weapons: machine guns. ***NEW ENTRY***



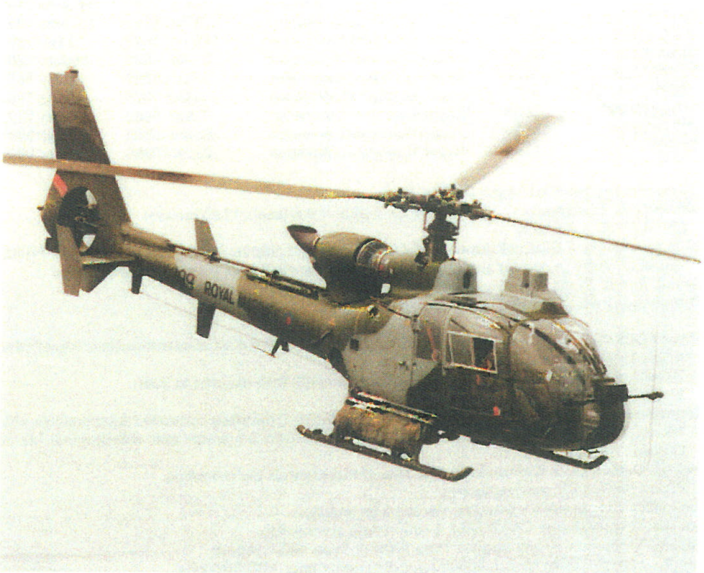
CHINOOK *4/2003*, A Sharma* / 0572678

Numbers/Type: 40 Westland/Boeing WAH-64D AH Mk 1.
Operational speed: 150 kt *(278 km/h).*
Service ceiling: 21,000 ft *(6,400 m).*
Range: 260 n miles *(480 km).*
Role/Weapon systems: Westland selected on 13 July 1995 to build McDonnell Douglas (now Boeing) Apache. Total 67 ordered. All-weather attack helicopter with day and night capability. One squadron to be earmarked for amphibious operations. To be operable from surface ships (CVS/LPH/LPD/LSL). First embarkation in *Ocean* in 2004 with an embarkation for Exercise Argonaut 05 planned. Full operational capability expected early 2006. Sensors: Lockheed Martin/Northrop Grumman AN/APG-78 Longbow radar, Lockheed Martin target acquisition and designation sight (TV and direct view) and AN/AAQ-11 pilot's night vision FLIR sensor (TADS/PNVS), BAE Systems HIDAS helicopter integrated defensive aids system, including Sky Guardian 2000 RWR, Type 1223 Laser warning receiver, Thales (Vinten) Vicon 78 Srs 455 chaff/flare dispenser, BAE Systems AN/AAR-57(V) common missile warning system (CMWS) and Lockheed Martin AN/APR-48A radar frequency interferometer. Weapons: 16 Hellfire missiles or 76 CRV-7 70 mm rockets. 1—30 mm chain gun. ***NEW ENTRY***



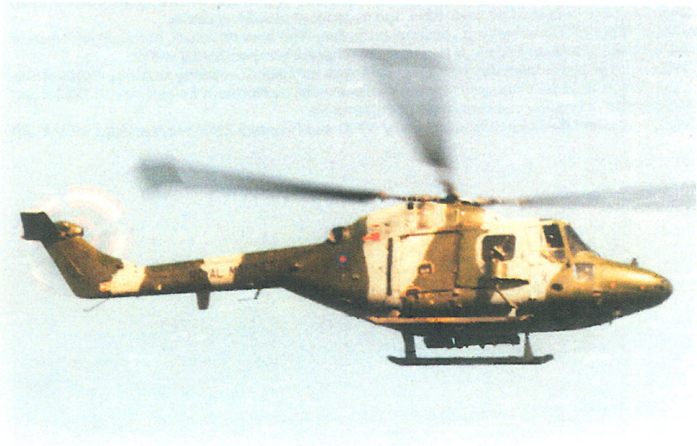
Apache AH Mk 1 *6/2003*, Paul Jackson* / 0572698

Numbers/Type: 9 Westland Gazelle AH Mk 1.
Operational speed: 130 kt *(242 km/h).*
Service ceiling: 9,350 ft *(2,850 m).*
Range: 361 n miles *(670 km).*
Role/Weapon systems: For observation with 847 Squadron. Sensors: Roof-mounted sight. Weapons: Normally unarmed. ***VERIFIED***



GAZELLE *8/2001, A Sharma* / 0131189

Numbers/Type: 6 Westland Lynx AH Mk 7.
Operational speed: 140 kt *(259 km/h).*
Service ceiling: 10,600 ft *(3,230 m).*
Range: 340 n miles *(630 km).*
Role/Weapon systems: Military general purpose and anti-tank with 847 Squadron. Sensors: Day/thermal imaging sight. Weapons: Up to eight Hughes TOW anti-tank missiles. ***VERIFIED***



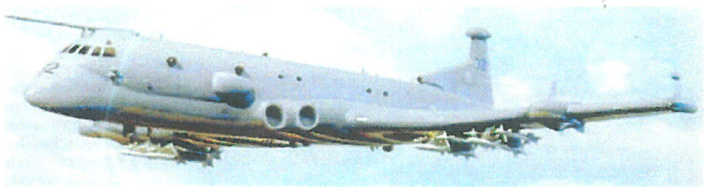
LYNX AH MK 7 *3/2002, A Sharma* / 0530024

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: All Air Force manned. Training and Liaison aircraft not listed include Gazelle HT 2, *Jetstream*, Falcon 20 (under contract) and 16 Hawk (FRADU).

Numbers/Type: 25 Hawker Siddeley Nimrod MR 2/2P/4.
Operational speed: 500 kt *(926 km/h)*.
Service ceiling: 42,000 ft *(12,800 m)*.
Range: 5,000 n miles *(9,265 km)*.
Role/Weapon systems: ASW but with ASV, OTHT and control potential at long range from shore bases; three are modified for EW; duties include SAR, maritime surveillance. Contract in July 1996 to convert and upgrade 21 (reduced to 18 in 2002) aircraft to MRA.4 standard. First flight is to take place in 2004, and operational status in 2009. MRA 4 equipment includes Searchwater 2000MR radar, Elta EL-8300 and ALR-56M ESM. Sensors: THORN EMI Searchwater radar, ECM, ESM, cameras, MAD, sonobuoys, AQS-901 acoustic processor. Weapons: ASW; 6.1 tons of Stingray torpedoes or depth bombs or mines. ASV; four Harpoon missiles. Self-defence; four AIM-9L Sidewinder. ***UPDATED***

NIMROD MR 2 *7/2003*, Paul Jackson* / 0572731



NIMROD MRA 4 (artist's impression) *2/2003*, BAE Systems* / 0531748

Numbers/Type: 7 Boeing E-3D Sentry AEW Mk 1.
Operational speed: 460 kt *(853 km/h)*.
Service ceiling: 36,000 ft *(10,973 m)*.
Range: 870 n miles *(1,610 km)*.
Role/Weapon systems: Air defence early warning aircraft with secondary role to provide coastal AEW for the Fleet; 6 hours endurance at the range given above. Sensors: Westinghouse APY-2 surveillance radar, Bendix weather radar, Mk XII IFF, Yellow Gate, ESM, ECM. Weapons: Unarmed. ***VERIFIED***

E-3D *10/2001, Ships of the World* / 0131206

MINE WARFARE FORCES

Notes: The application of Autonomous Underwater Vehicles (AUVs) to littoral mine-reconnaissance and mine-hunting is under investigation. Initial studies are due to complete in 2004.

11 HUNT CLASS
(MINESWEEPERS/MINEHUNTERS—COASTAL) (MHSC/PP)

Name	*No*	*Builders*	*Launched*	*Commissioned*
BRECON	M 29	Vosper Thornycroft, Woolston	21 June 1978	21 Mar 1980
LEDBURY	M 30	Vosper Thornycroft, Woolston	5 Dec 1979	11 June 1981
CATTISTOCK	M 31	Vosper Thornycroft, Woolston	22 Jan 1981	16 June 1982
COTTESMORE	M 32	Yarrow Shipbuilders, Glasgow	9 Feb 1982	24 June 1983
BROCKLESBY	M 33	Vosper Thornycroft, Woolston	12 Jan 1982	3 Feb 1983
MIDDLETON	M 34	Yarrow Shipbuilders, Glasgow	27 Apr 1983	15 Aug 1984
DULVERTON	M 35	Vosper Thornycroft, Woolston	3 Nov 1982	4 Nov 1983
CHIDDINGFOLD	M 37	Vosper Thornycroft, Woolston	6 Oct 1983	10 Aug 1984
ATHERSTONE	M 38	Vosper Thornycroft, Woolston	1 Mar 1986	30 Jan 1987
HURWORTH	M 39	Vosper Thornycroft, Woolston	25 Sep 1984	2 July 1985
QUORN	M 41	Vosper Thornycroft, Woolston	23 Jan 1988	21 Apr 1989

Displacement, tons: 615 light; 750 full load
Dimensions, feet (metres): 187 wl; 197 oa × 32.8 × 9.5 (keel); 11.2 (screws) *(57; 60 × 10 × 2.9; 3.4)*
Main machinery: 2 Ruston-Paxman 9-59K Deltic diesels; 1,900 hp *(1.42 MW)*; 1 Deltic Type 9-55B diesel for pulse generator and auxiliary drive; 780 hp *(582 kW)*; 2 shafts; bow thruster
Speed, knots: 15 diesels; 8 hydraulic drive. **Range, miles:** 1,500 at 12 kt
Complement: 45 (5 officers)

Guns: 1 DES/MSI DS 30B 30 mm/75; 650 rds/min to 10 km *(5.4 n miles)* anti-surface; 3 km *(1.6 n miles)* anti-aircraft; weight of shell 0.36 kg.
2 Oerlikon/BMARC 20 mm GAM-CO1 (enhancement); 900 rds/min to 2 km.
2—7.62 mm MGs.
Countermeasures: MCM: 2 PAP 104 Mk 3/105 (RCMDS 1) remotely controlled submersibles, MS 14 magnetic loop, Sperry MSSA Mk 1 Towed Acoustic Generator and conventional Mk 8 Oropesa sweeps.
Decoys: Outfit DLK; 2 Barricade Mk III; 6 sets of triple barrels per mounting.
2 Irvin Replica RF; passive decoys.
ESM: MEL Matilda UAR 1; Marconi Mentor A (in some).
Combat data systems: CAAIS DBA 4 action data automation.
Radars: Navigation: Kelvin Hughes Type 1006 or Type 1007; I-band.
Sonars: Plessey 193M Mod 1; hull-mounted; minehunting; 100/300 kHz.
Mil Cross mine avoidance sonar; hull-mounted; active; high frequency.
Type 2059 to track PAP 104/105.

Programmes: A class of MCM Vessels combining both hunting and sweeping capabilities.
Modernisation: It is planned to replace RCMDS with an expendable mine disposal system. 30 mm gun has replaced the Bofors 40 mm. Drumgrange Precise Fixing System fitted 2003-04. Upgrade plans include a new minehunting sonar (Sonar 2193) and NAUTIS III command system. These will be fitted in eight ships 2004-05. Plans for the influence minesweeping capability to be replaced by a remote system, RIMS, have all been deferred. *Cottesmore, Dulverton*, and *Brecon* modified as Northern Ireland patrol ships. Sweep gear in these three ships has been displaced by three RIBs, and associated launching davits.
Structure: GRP hull. Combines conventional propellers with bow thrusters. The eight MCM ships are to be fitted with an improved two-man decompression chamber by 2005.
Operational: For operational deployments fitted with enhanced weapons systems. Ships of this class can be used for Fishery Protection duties as well as Northern Ireland patrols. M 33 and M 38 based at Faslane, the remainder at Portsmouth.
Sales: *Bicester* and *Berkeley* to Greece in July 2000 and February 2001 respectively. ***UPDATED***

CHIDDINGFOLD *1/2004*, Derek Fox* / 0572677

11 SANDOWN CLASS (MINEHUNTERS) (MHC/SRMH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SANDOWN	M 101	Vosper Thornycroft, Woolston	16 Apr 1988	9 June 1989
INVERNESS	M 102	Vosper Thornycroft, Woolston	27 Feb 1990	24 Jan 1991
WALNEY	M 104	Vosper Thornycroft, Woolston	25 Nov 1991	20 Feb 1993
BRIDPORT	M 105	Vosper Thornycroft, Woolston	30 July 1992	6 Nov 1993
PENZANCE	M 106	Vosper Thornycroft, Woolston	11 Mar 1997	14 May 1998
PEMBROKE	M 107	Vosper Thornycroft, Woolston	15 Dec 1997	6 Oct 1998
GRIMSBY	M 108	Vosper Thornycroft, Woolston	10 Aug 1998	25 Sep 1999
BANGOR	M 109	Vosper Thornycroft, Woolston	16 Apr 1999	26 July 2000
RAMSEY	M 110	Vosper Thornycroft, Woolston	25 Nov 1999	22 June 2001
BLYTH	M 111	Vosper Thornycroft, Woolston	4 July 2000	20 July 2001
SHOREHAM	M 112	Vosper Thornycroft, Woolston	9 Apr 2001	2 Sep 2002

Displacement, tons: 450 standard; 484 full load
Dimensions, feet (metres): 172.2 × 34.4 × 7.5 *(52.5 × 10.5 × 2.3)*
Main machinery: 2 Paxman Valenta 6RP200E/M diesels; 1,523 hp *(1.14 MW)* sustained; Voith-Schneider propulsion; 2 Schottel bow thrusters
Speed, knots: 13 diesels; 6.5 electric drive. **Range, miles:** 2,500 at 12 kt
Complement: 34 (5 officers) plus 6 spare berths

Guns: 1 DES/MSI DS 30B 30 mm/75; 650 rds/min to 10 km *(5.4 n miles)* anti-surface; 3 km *(1.6 n miles)* anti-aircraft; weight of shell 0.36 kg.
Countermeasures: MCM: ECA mine disposal system, 2 PAP 104 Mk 5 (RCMDS 2). These craft can carry 2 mine wire cutters, a charge of 100 kg and a manipulator with TV/projector. Control cables are either 1,000 m (high capacity) or 2,000 m (low capacity) and the craft can dive to 300 m at 6 kt with an endurance of 5e 20 minute missions.
Decoys: Outfit DLK; 2 Barricade (fitted for deployment).
Combat data systems: Plessey Nautis M action data automation.
Radars: Navigation: Kelvin Hughes Type 1007; I-band.
Sonars: Marconi Type 2093; VDS; VLF-VHF multifunction with 5 arrays; mine search and classification.

Programmes: A class designed for hunting and destroying mines and for operating in deep and exposed waters. Single role minehunter (SRMH) complements the 'Hunt' class. On 9 January 1984 the Vosper Thornycroft design for this class was approved. First one ordered August 1985, the four more on 23 July 1987. A contract was to have been placed for a second batch in 1990 but this was deferred twice, until an order for seven more was placed in July 1994.
Modernisation: It is planned to replace RCMDS 2 with an expendable mine-disposal system. Drumgrange Precise Fixing System to be fitted by 2004.
Structure: GRP hull. Combines vectored thrust units with bow thrusters and Remote-Control Mine Disposal System (RCMDS). The sonar is deployed from a well in the hull. Batch 2 have larger diameter (1.8 m) Voith-Schneider props and an improved two-man decompression chamber. The new ships have a larger Gemini crane for RCMDS vehicle launch and recovery. All of the class are to be retrofitted in due course.
Operational: M 102, M 105, M 106, M 111 based at Faslane, the remainder at Portsmouth.
Sales: Three to Saudi Arabia. *Cromer* decommissioned in October 2001 for conversion to a static training ship at Dartmouth. ***UPDATED***

WALNEY *12/2003*, Marian Ferrette* / 0572676

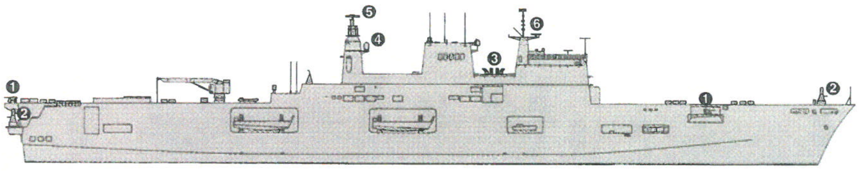
PENZANCE *8/2003*, Derek Fox* / 0572675

AMPHIBIOUS FORCES

Notes: Further amphibious ships and craft covered in RFA and RLC (ex-RCT) sections. These include a Helicopter Support Ship, four LSD, five LSLs, and six LCLs.

1 HELICOPTER CARRIER (LPH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
OCEAN	L 12	Vickers Shipbuilding/Kvaerner Govan	30 May 1994	11 Oct 1995	30 Sep 1998



OCEAN *(Scale 1 : 1,800), Ian Sturton* / 0053220

OCEAN *3/2003*, A Sharma* / 0572674

Displacement, tons: 21,758 full load
Dimensions, feet (metres): 667.3 oa; 652.2 pp × 112.9 × 21.3 *(203.4; 198.8 × 34.4 × 6.6)*
Flight deck, feet (metres): 557.7 × 104 *(170 × 31.7)*
Main machinery: 2 Crossley Pielstick 12 PC2.6 V 400 diesels; 18,360 hp(m) *(13.5 MW)* sustained; 2 shafts; Kamewa cp props; bow thruster; 612 hp *(450 kW)*
Speed, knots: 19. **Range, miles:** 8,000 at 15 kt
Complement: 285 plus 206 aircrew plus up to 830 Marines
Military lift: 4 LCVP Mk 5 (on davits); 2 Griffon hovercraft; 40 vehicles and equipment for most of a marine commando unit

Guns: 8 Oerlikon/BMARC 20 mm GAM-B03 (4 twin) ❶. 650 rds/min to 10 km *(5.4 n miles)* anti-surface; 3 km *(1.6 n miles)* anti-aircraft; weight of shell 0.36 kg.
3 Vulcan Phalanx Mk 15 ❷. 6 barrels per launcher; 3,000 rds/min combined to 1.5 km.
Countermeasures: Decoys: Outfit DLJ; 8 Sea Gnat 130 mm/102 mm launchers ❸ and DLH offboard decoys.
ESM: Racal Thorn UAT; intercept.
Combat data systems: Ferranti ADAWS 2000 Mod 1; Link 11, Link 16 in due course; Marconi Matra SATCOM 1D ❹; Merlin computer link. JMCIS from 2000.
Radars: Air/surface search: Plessey Type 996 ❺; E/F-band.
Surface search/aircraft control: 2 Kelvin Hughes Type 1007 ❻; I-band.
IFF: Type 1010/1011.

Helicopters: 12 Sea King HC.Mk 4/Merlin plus 6 Lynx (or navalised variants of WAH-64 Apache by 2003).

Programmes: Initial invitations to tender were issued in 1987. Tenders submitted in July 1989 were allowed to lapse and it was not until 11 May 1993 that a contract was placed. The hull was built on the Clyde by Kvaerner Govan and sailed under its own power to Vickers at Barrow in November 1996 for the installation of military equipment.

Modernisation: Command and control facilities upgraded in 2002 to facilitate UKMCC role.

Structure: The hull form is based on the 'Invincible' class with a modified superstructure. The deck is strong enough to take Chinook helicopters. Six landing and six parking spots for the aircraft. Accommodation for 972 plus 303 bunk overload. A garage is situated at the after end of the hangar. This is accessible from the after aircraft lift and via ramps through the ship's stern. Hull 'blisters' were fitted at waterline level port and starboard during 2002 to improve deployment and recovery of LCVPs.

Operational: The LPH provides a helicopter lift and assault capability. The prime role of the vessel is embarking, supporting and operating a squadron of helicopters and carrying a Royal Marine Commando including vehicles, arms and ammunition. Up to 20 Sea Harriers can be carried but not supported. Operational sea trials started in June 1998 and completed in February 1999. Twin 20 mm guns are not always carried and may be replaced by single 20 mm. Based at Devonport.

UPDATED

OCEAN *4/2003*, A Sharma* / 0572673

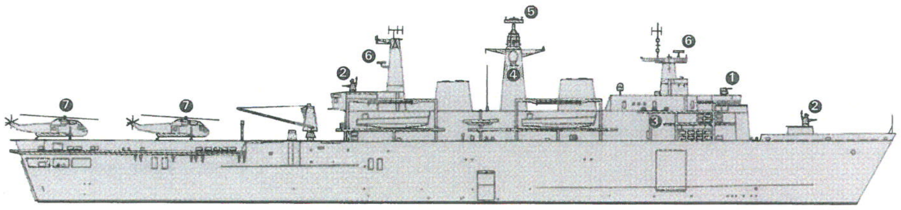
OCEAN *5/2003*, A Sharma* / 0572732

2 ALBION CLASS (ASSAULT SHIPS) (LPD)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ALBION	L 14	BAE Systems, Barrow	22 May 1998	9 Mar 2001	19 June 2003
BULWARK	L 15	BAE Systems, Barrow	27 Jan 2000	15 Nov 2001	2004

Displacement, tons: 14,600 standard; 18,500 full load
Dimensions, feet (metres): 577.4 × 94.8 × 23.3 *(176 × 28.9 × 7.1)*

Main machinery: Diesel-electric; 2 Wärtsilä Vasa 16V 32LNE diesel generators; 17,000 hp(m) *(12.5 MW)*; 2 Wärtsilä Vasa 4R 32LNE diesel generators; 4,216 hp(m) *(3.1 MW)*; 2 motors; 2 shafts; LIPS props; 1 bow thruster; 1,176 hp(m) *(865 kW)*



ALBION *(Scale 1 : 1,500), Ian Sturton* / 0572733

ALBION *5/2003*, John Brodie* / 0572691

Speed, knots: 20. **Range, miles:** 8,000 at 15 kt
Complement: 325
Military lift: 305 troops; overload 710 troops; 67 support vehicles; 4 LCU Mk 10 or 2 LCAC (dock); 4 LCVP Mk 5 (davits)

Guns: 2—20 mm (twin) ❶. 2 Goalkeeper CIWS ❷.
Countermeasures: Decoys: Outfit DLJ; 8 Sea Gnat launchers ❸ and DLH offboard decoys.
ESM/ECM: Racal Thorn UAT 1/4.
Combat data systems: ADAWS 2000. Thomson-CSF/Redifon/BAeSEMA/CS comms system. Marconi Matra SCOT 2D SATCOM ❹.
Radars: Air/surface search: Siemens Plessey Type 996 ❺; E/F-band.
Navigation/aircraft control: 2 Racal Marine Type 1007 ❻; I-band.
IFF: Type 1016/1017.

Helicopters: Platform for 3 Sea King Mk 4 ❼. Chinook capable.

Programmes: A decision was taken in mid-1991 to replace both existing LPDs. Project definition studies by YARD completed in February 1994. Invitations to tender for design and build of two ships were issued to VSEL and Yarrow on 18 August 1994 with an additional tender package to Vosper Thornycroft in November 1994. In March 1995 it was announced that only VSEL would bid, conforming to the rules governing non-competitive tenders. The contract to build the ships was awarded on 18 July 1996. First steel cut 17 November 1997. Sea Trials conducted December 2002 to January 2003.
Structure: The design includes a floodable well dock, garage (with capacity for six Challenger tanks), stern gate and side ramp access. The Flight Deck has two helicopter landing spots. A large joint operations room contains substantial command and control facilities. The ships are built to military damage control standards.
Operational: Based at Devonport.

UPDATED

ALBION *7/2003*, B Sullivan* / 0572699

ALBION *5/2003*, John Brodie* / 0572690

10 LCU MK 10

L 1001-1010

Displacement, tons: 170 light; 240 full load
Dimensions, feet (metres): 97.8 × 24.3 × 5.6 *(29.8 × 7.4 × 1.7)*
Main machinery: 2 MAN diesels; 2 Schottel propulsors; bow thruster
Speed, knots: 10. **Range, miles:** 600 at 12 kt
Complement: 7
Military lift: 1 MBT or 4 vehicles or 120 troops
Radars: Navigation: I-band.

Comment: Ordered in 1998 from Ailsa Troon Yard. First pair delivered in November 1999 and, following extensive trials, modifications made to ballast tanks to improve beach landing capabilities. This work carried out by BAE Systems Marine, Govan, from whom a further eight craft were ordered for delivery by mid-2003. Fitted with interlocking bow and stern ramps, they operate from the 'Albion' class LPDs.

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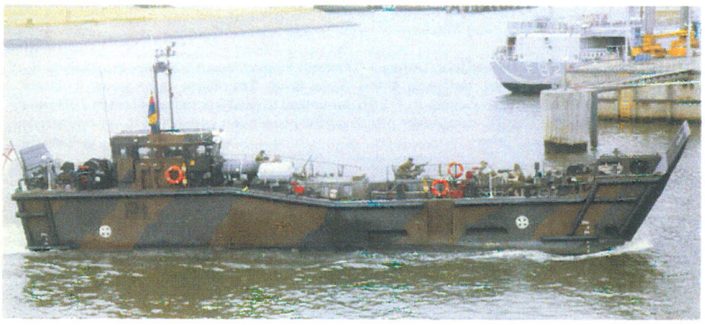

LCU 1001 *7/2003*, Michael Winter* / 0572672

3 LCU Mk 9S

L 701 L 705 L 709

Displacement, tons: 115 light; 175 full load
Dimensions, feet (metres): 90.2 × 21.5 × 5 *(27.5 × 6.8 × 1.6)*
Main machinery: 2 Paxman or Dorman diesels; 474 hp *(354 kW)* sustained; Kort nozzles or Schottel propulsors
Speed, knots: 10. **Range, miles:** 300 at 9 kt
Complement: 7
Military lift: 1 MBT or 60 tons of vehicles/stores or 90 troops
Radars: Navigation: Raytheon; I-band.

Comment: Last remaining craft of class of 14. Built in the mid-1960s and originally designated Mk 9M. Upgraded with Schottel propulsors in the 1990s and redesignated Mk 9S.

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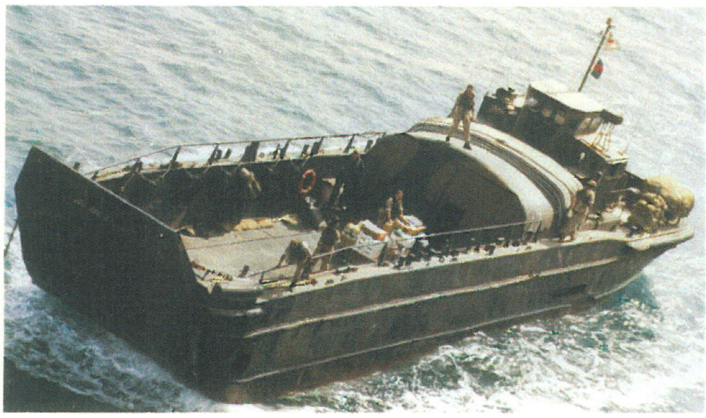

LCU Mk 9 *3/2003*, A Sharma* / 0572671

4 GRIFFON 2000 TDX(M) (LCAC(L))

C 21-24

Displacement, tons: 6.8 full load
Dimensions, feet (metres): 36.1 × 15.1 *(11 × 4.6)*
Main machinery: 1 Deutz BF8L513 diesel; 320 hp *(239 kW)* sustained
Speed, knots: 33. **Range, miles:** 300 at 25 kt
Complement: 2
Military lift: 16 troops plus equipment or 2 tons
Guns: 1—7.62 mm MG.
Radars: Navigation: Raytheon; I-band.

Comment: Ordered 26 April 1993. Design based on 2000 TDX(M) hovercraft. Aluminium hulls. Speed indicated is at Sea State 3 with a full load.

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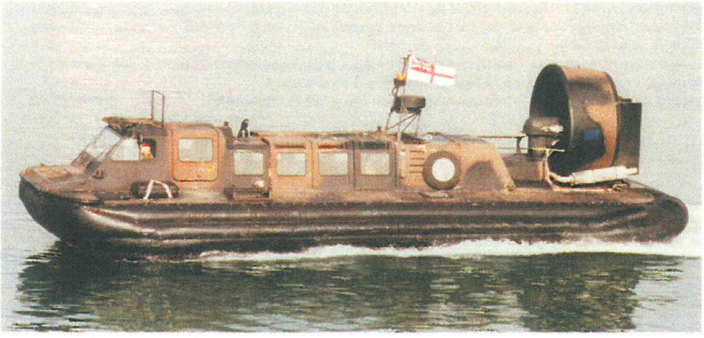

GRIFFON TDX(M) *3/2002, John Brodie* / 0530019

21 LCVP Mk 4

8031 8401 8403-8408 8410-8420 8621 8622

Displacement, tons: 10.5 light; 16 full load
Dimensions, feet (metres): 43.8 × 10.9 × 2.8 *(13.4 × 3.3 × 0.8)*
Main machinery: 2 Perkins T6.3544 diesels; 290 hp *(216 kW)*; 2 shafts
Speed, knots: 15. **Range, miles:** 150 at 14 kt
Complement: 3
Military lift: 20 Arctic equipped troops or 5.5 tons

Comment: Built by Souters and McTays. Introduced into service in 1986. Fitted with removable arctic canopies across well-deck. Royal Marines' craft replaced by LCVP Mk 5. Other craft operated by Royal Logistics Corps. These serve in rotation between the Falklands and UK.

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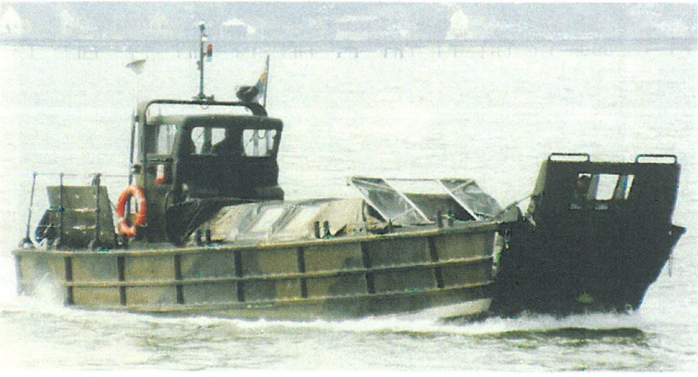

LCVP Mk 4 *8/2002, Marian Ferrette* / 0529938

23 LCVP Mk 5

LCVP 9473 9673-9692 9707 9708

Displacement, tons: 25 full load
Dimensions, feet (metres): 50.9 × 13.8 × 3 *(15.5 × 4.2 × 0.9)*
Main machinery: 2 Volvo Penta TAMD 72 WJ diesels; 2 PP 170 water-jets
Speed, knots: 25. **Range, miles:** 210 at 18 kt
Complement: 3
Military lift: 35 troops plus 2 tons equipment or 8 tons vehicles and stores
Radars: Navigation: Raytheon 40; I-band.

Comment: Contract placed with Vosper Thornycroft on 31 January 1995 for one craft which was handed over on 17 January 1996. Four more ordered on 23 October 1996 for *Ocean* were delivered 6 December 1997; and two more for RM Poole in October 1998. Sixteen more ordered from FBM Babcock Marine in August 2001. Can beach fully laden on a 1 : 120 gradient. Speed 18 kt at full load.

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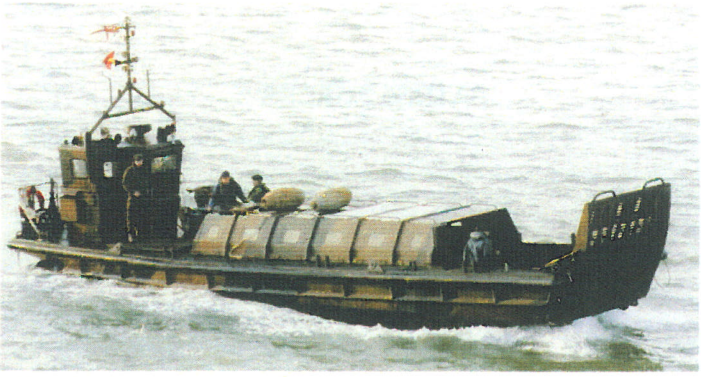

LCVP Mk 5 *11/2002, W Sartori* / 0529940

FAST INTERCEPT CRAFT (HSIC)

Comment: Two main types in service. Both around 15 m in length and powered by two or three 660 hp diesels to give speeds up to 55 kt. One has a VSV wave piercing hull which can maintain fast speeds in high sea states. Both types can be transported by air.

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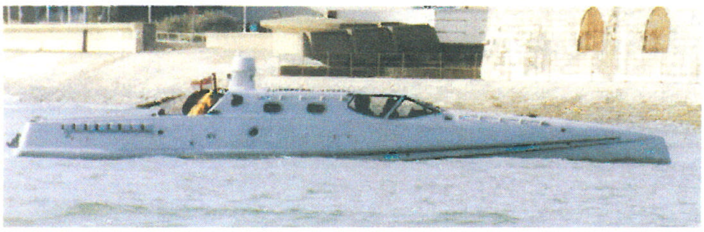
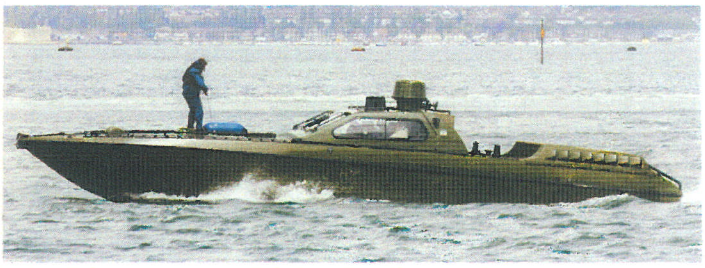


VSV *10/2003*, Derek Fox* / 0572670



FIC 145 *5/2003*, Maritime Photographic* / 0572700

RRC and RIB

Comment: (1) 36 RRC Mk 3: 2.6 tons and 7.4 m *(24.2 ft)* powered by single Yamaha 220 hp *(162 kW)* diesel; 36 kt fully laden (40 light); carry 8 troops. Some used by the Army. In service 1996-98.
(2) RIBs: Halmatic Arctic 22/Pacific 22/Arctic 28/Pacific 28. Rolling contract for all four types. Capable of carrying 10 to 15 fully laden troops at speeds of 26 to 35 kt.

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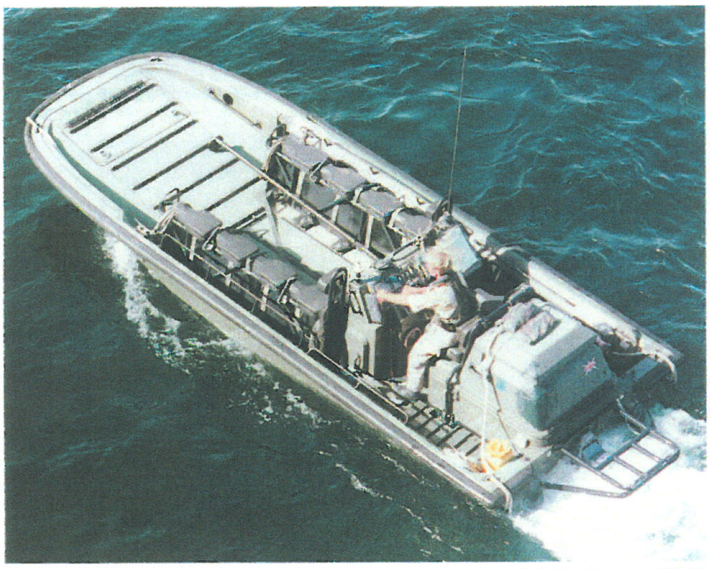
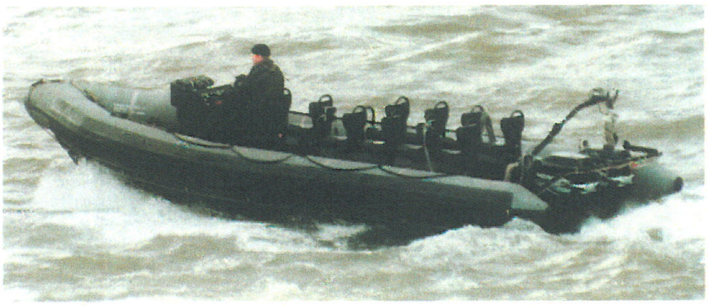


RRC *10/2001, A Sharma* / 0131194



RIB *4/2001, A Sharma* / 0131195

PATROL FORCES

Notes: (1) Two 'Archer' class, *Ranger* and *Trumpeter*, are used as Gibraltar Guard Ships (details in *Training Ships* section). These were augmented by *Scimitar* and *Sabre* in September 2002.
(2) Two 'Archer' class, *Pursuer* and *Dasher* are based at Cyprus.
(3) Consideration is being given to a lease deal for the early replacement of the two 'Castle' class patrol vessels. The arrangement would be similar to those for the 'River' class. Requirements are based on the Falkland Island patrol task but include the capability to deploy worldwide and to conduct fishery protection duties. Invitations to tender were issued in February 2004 and potential bidders are likely to include VT Shipbuilding with a modified 'River' class design incorporating a flight deck.

1 ANTARCTIC PATROL SHIP (AGOBH)

Name	*No*	*Builders*	*Commissioned*
ENDURANCE (ex-*Polar Circle*)	A 171 (ex-A 176)	Ulstein Hatlo, Norway	21 Nov 1991

Displacement, tons: 6,500 full load
Dimensions, feet (metres): 298.6 × 57.4 × 27.9 *(91 × 17.9 × 8.5)*
Main machinery: 2 Bergen BRM8 diesels, 8,160 hp(m) *(6 MW)* sustained; 1 shaft; cp prop; bow and stern thrusters
Speed, knots: 15. **Range, miles:** 6,500 at 12 kt
Complement: 112 (15 officers) plus 14 Royal Marines
Radars: Surface search: Raytheon R 84 and M 34 ARG; E/F- and I-bands.
Navigation: Kelvin Hughes Type 1007; I-band.
IFF: Type 1011.
Helicopters: 2 Westland Lynx HAS.Mk 3.

Comment: Leased initially in late 1991 and then bought outright in early 1992 as support ship and guard vessel for the British Antarctic Survey. Hull is painted red. Inmarsat fitted. Main machinery is resiliently mounted. Ice-strengthened hull capable of breaking 1 m thick ice at 3 kt. Helicopter hangar is reached by lift from the flight deck. Accommodation is to high standards. Name and pennant number changed during refit in mid-1992. Sonars 2053, 2090 and 60-88. Based at Portsmouth.

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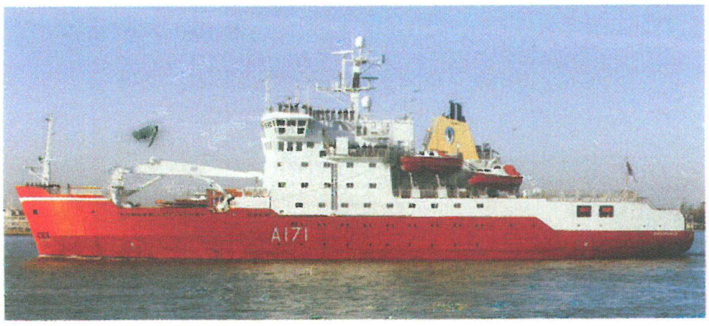

ENDURANCE *10/2003*, Maritime Photographic* / 0572701

2 CASTLE CLASS (OFFSHORE PATROL VESSELS Mk 2) (PSOH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
LEEDS CASTLE	P 258	Hall Russell, Aberdeen	29 Oct 1980	27 Oct 1981
DUMBARTON CASTLE	P 265	Hall Russell, Aberdeen	3 June 1981	26 Mar 1982

Displacement, tons: 1,427 full load
Dimensions, feet (metres): 265.7 × 37.7 × 11.8 *(81 × 11.5 × 3.6)*
Main machinery: 2 Ruston 12RKC diesels; 5,640 hp *(4.21 MW)* sustained; 2 shafts; cp props
Speed, knots: 19.5. **Range, miles:** 10,000 at 12 kt
Complement: 45 (6 officers) plus austerity accommodation for 25 Royal Marines
Guns: 1 DES/MSI DS 30B 30 mm/75; 650 rds/min to 10 km *(5.4 n miles)*; weight of shell 0.36 kg.
Mines: Can lay mines.
Countermeasures: Decoys: Outfit DLE; 2 or 4 Plessey Shield 102 mm 6-tubed launchers.
ESM: 'Orange Crop'; intercept.
Combat data systems: Racal CANE DEA-3 action data automation; SATCOM.
Weapons control: Radamec 2000 series optronic director.
Radars: Surface search: Plessey Type 994; E/F-band.
Navigation: Kelvin Hughes Type 1006; I-band.
Helicopters: Platform for operating Sea King or Lynx.

Comment: Started as a private venture. Ordered 8 August 1980. Design includes an ability to lay mines. Inmarsat commercial terminals fitted. Two Avon Sea Rider high-speed craft are embarked. P 258 based in the Falklands. P 265 converted to MCM command role in 2001 and based at Portsmouth. The 76 mm (never fitted) gunbay has been converted to an operations room.

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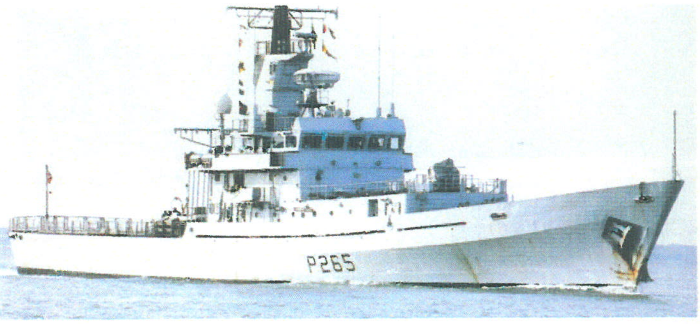

DUMBARTON CASTLE *8/2003*, W Sartori* / 0572669

2 FAST PATROL CRAFT (PBF)

SCIMITAR (ex-*Grey Fox*) P 284 **SABRE** (ex-*Grey Wolf*) P 285

Displacement, tons: 24 full load
Dimensions, feet (metres): 52.5 × 10.2 × 3.9 *(16 × 3.1 × 1.2)*
Main machinery: 2 MAN 2480 LXE diesels; 2 shafts
Speed, knots: 35. **Range, miles:** 450 at 17 kt
Complement: 5
Guns: 2 MGs.
Radars: Surface search: Furuno 1941; I-band.

Comment: Halmatic M160 craft operated in Northern Ireland from 1988 but transferred (and renamed) to Gibraltar in September 2002 to augment the Gibraltar squadron. Details are based on others in service and have not been confirmed.

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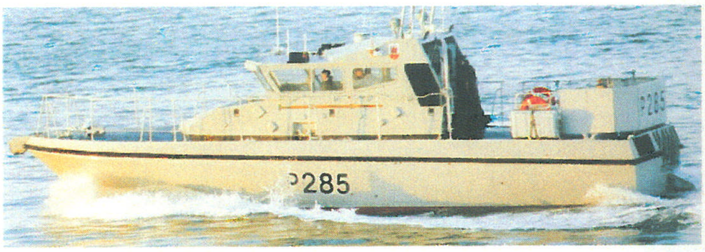

SABRE *11/2003*, W Sartori* / 0573697

3 RIVER CLASS (OFFSHORE PATROL VESSELS) (PSO)

Name	*No*	*Builders*	*Commissioned*
TYNE	P 281	Vosper Thornycroft, Woolston	4 July 2003
SEVERN	P 282	Vosper Thornycroft, Woolston	31 July 2003
MERSEY	P 283	Vosper Thornycroft, Woolston	26 Mar 2004

Displacement, tons: 1,700 full load
Dimensions, feet (metres): 261.7 × 44.6 × 23.0 *(79.75 × 13.6 × 7)*
Main machinery: 2 MAN 12RK 270 diesels; 11,063 hp *(8.25 MW)*; 2 shafts; bow thruster; 375 hp *(280 kW)*
Speed, knots: 20. **Range, miles:** 5,500 at 15 kt
Complement: 30 (plus 18 boarding party)
Guns: 1—20 mm Oerlikon/BMARC. 2—7.62 mm MGs.
Radars: Surface search: Kelvin Hughes Nucleus; E/F-band.
Navigation: Kelvin Hughes Nucleus; I-band.
Helicopters: Vertrep only.

Programmes: In the first agreement of its kind, Vosper Thornycroft contracted on 8 May 2001 for the construction, lease and support of three vessels over initial five-year period to replace five ships of 'Island' class.
Structure: Based on Vosper Thornycroft EEZ Management Vessel concept design. The ships are to be capable of operating two RIBs. Fitted with a 3 tonne crane.
Operational: To join Fishery Protection Squadron based at Portsmouth.

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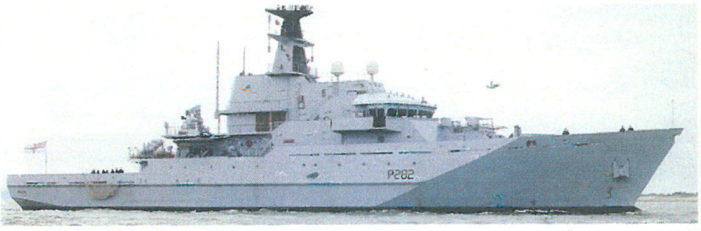

SEVERN *10/2003*, Maritime Photographic* / 0572702

TRAINING SHIPS

16 ARCHER CLASS (TRAINING and PATROL CRAFT) (PB/AXL)

EXPRESS P 163 (ex-A 163)
EXPLORER P 164 (ex-A 154)
EXAMPLE P 165 (ex-A 153)
EXPLOIT P 167 (ex-A 167)
ARCHER P 264
BITER P 270
SMITER P 272
PURSUER P 273
TRACKER P 274
RAIDER P 275
BLAZER P 279
DASHER P 280
PUNCHER P 291
CHARGER P 292
RANGER P 293
TRUMPETER P 294

Displacement, tons: 54 full load
Dimensions, feet (metres): 68.2 × 19 × 5.9 *(20.8 × 5.8 × 1.8)*
Main machinery: 2 RR CV 12 M800T diesels; 1,590 hp *(1.19 MW)*; or 2 MTU diesels; 2,000 hp(m) *(1.47 MW)* (P 274-275); 2 shafts
Speed, knots: 22 or 25 (P 274-275). **Range, miles:** 550 at 15 kt
Complement: 11 (3 officers)
Guns: 1 Oerlikon 20 mm (can be fitted). 2—7.62 mm MGs (P 293, P 294).
Radars: Navigation: Racal Decca 1216; I-band.

Comment: First 14 ordered from Watercraft Ltd, Shoreham. Commissioning dates: *Archer,* August 1985; *Example,* September 1985; *Explorer,* January 1986; *Biter* and *Smiter,* February 1986. The remaining nine were incomplete when Watercraft went into liquidation in 1986 and were towed to Portsmouth for completion in 1988 by Vosper Thornycroft. Initially allocated for RNR training but underused in that role and now employed as University Naval Units (URNU)- *Puncher* (London), *Blazer* (Southampton and Sussex), *Smiter* (Glasgow), *Charger* (Liverpool), *Archer* (Aberdeen), *Biter* (Manchester and Salford), *Exploit* (Birmingham and Bristol), *Express* (Wales), *Example* (Northumbria) and *Explorer* (Hull). The four ex-RNXS ships (P 163-P 167) are also part of the Inshore Training Squadron and are based at Gosport, Ipswich and Penarth. *Ranger* and *Trumpeter* are used as Gibraltar guard ships and *Dasher* and *Pursuer* at Cyprus. Similar craft built for the Indian and Omani Coast Guards. Two more ordered from BMT in early 1997 to a modified design and built at Ailsa, Troon. *Tracker* and *Raider* commissioned January 1998 for Oxford and Cambridge University respectively.
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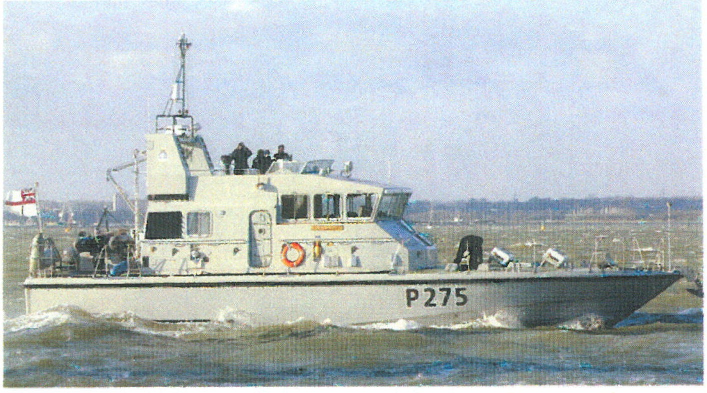
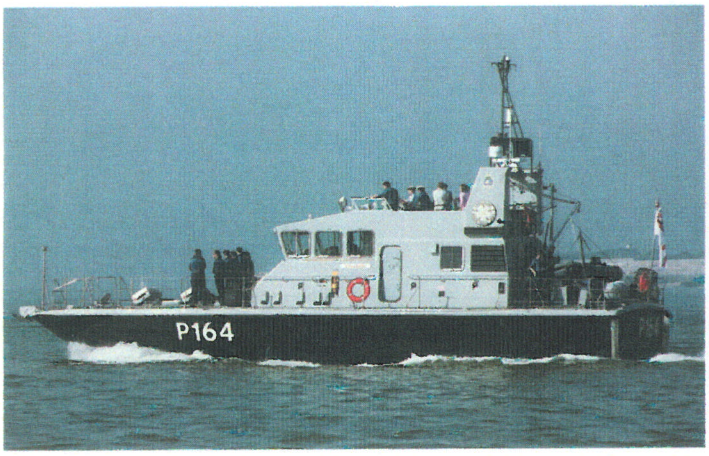


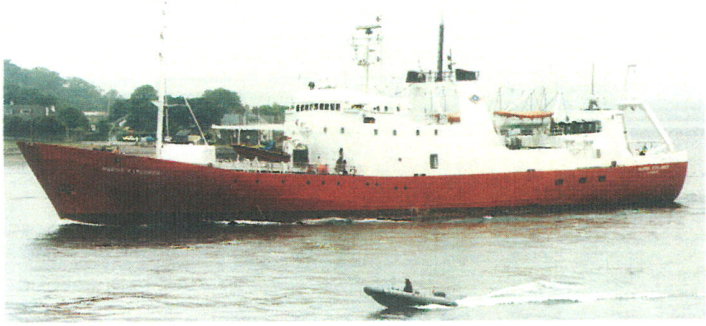
RAIDER *2/2003*, Maritime Photographic* / 0572703



EXPLORER *8/2001, Maritime Photographic* / 0131242

SURVEY SHIPS

Notes: (1) In addition to the ships listed below, some work is done by chartered vessels with Naval Parties embarked. These are *Confidante,* which operates for the Hydrographer with Naval Party 1016 embarked, and *Marine Explorer* with Naval Party 1008. These NPs are to be retained.



MARINE EXPLORER *6/1999, Eidesvik Shipping* / 0084422

1 SCOTT CLASS (AGSH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SCOTT	H 131	Appledore Shipbuilders, Bideford	13 Oct 1996	30 June 1997

Displacement, tons: 13,500 full load
Dimensions, feet (metres): 430.1 × 70.5 × 29.5 *(131.1 × 21.5 × 9)*
Main machinery: 2 Krupp MaK 9M32 9-cyl diesels; 10,800 hp(m) *(7.94 MW)*; 1 shaft; LIPS cp prop; retractable bow thruster
Speed, knots: 17.5
Complement: 62 (12 officers) (see *Comment*)
Radars: Navigation: Kelvin Hughes ARPA 1626; I-band.
Helicopters: Platform for 1 light.

Comment: Designed by BAeSEMA/YARD and ordered 20 January 1995 to replace *Hecla.* Ice-strengthened bow. Foredeck strengthened for helicopter operations. The centre of the OSV surveying operations consists of an integrated navigation suite, the Sonar Array Sounding System (SASS) and data processing equipment. Additional sensors include gravimeters, a towed proton magnetometer and the Sonar 2090 ocean environment sensor. The SASS IV multibeam depth-sounder is capable of gathering 121 individual depth samples concurrently over a 120° swathe, producing a three-dimensional image of the seabed. 8,000 tons of seawater ballast can be used to achieve a sonar trim. The ship is at sea for 300 days a year with a crew of 42 embarked, rotating with the other 20 ashore. Can be used as an MCMV support ship. Based at Devonport.
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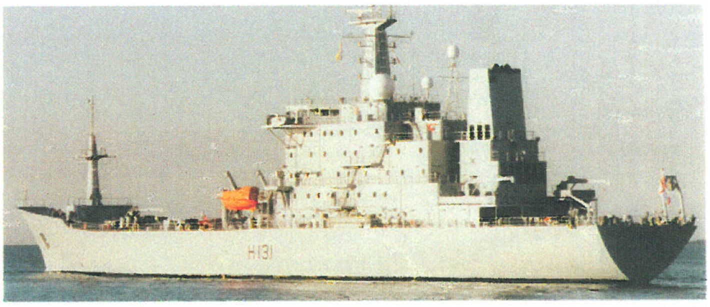

SCOTT *9/2002, John Brodie* / 0530044

2 ECHO CLASS (AGS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ECHO	H 87	Appledore, Bideford	4 Mar 2002	7 Mar 2003
ENTERPRISE	H 88	Appledore, Bideford	2 May 2002	17 Oct 2003

Displacement, tons: 3,470 full load
Dimensions, feet (metres): 295.3 × 55.1 × 18 *(90 × 16.8 × 5.5)*
Main machinery: Diesel electric; 4.8 MW; 2 azimuth thrusters; 1 bow thruster
Speed, knots: 15. **Range, miles:** 9,000 at 12 kt
Complement: 49 with accommodation for 81
Guns: 2—20 mm. 4—7.62 mm MGs.
Radars: Navigation: 2 sets; I-band.

Comment: The order for two multirole Hydrographic and Oceanographic Survey Vessels was placed with the prime contractor, Vosper Thornycroft Ltd, on 19 June 2000. The ships were built by Appledore Shipbuilders in Devon. The contract covers the design, build and through-life support of the ships over their 25 year service. In addition to specialist surveying tasks, the ships' operational roles include Rapid Environmental Assessment, Amphibious Warfare surveys and Mine Countermeasures Tasking Support. The survey suite consists of hull mounted multibeam sonar, towed side scan sonar, towed undulating sensors, an adaptive survey planning system and a Survey Motor Launch. Both to be based at Devonport.
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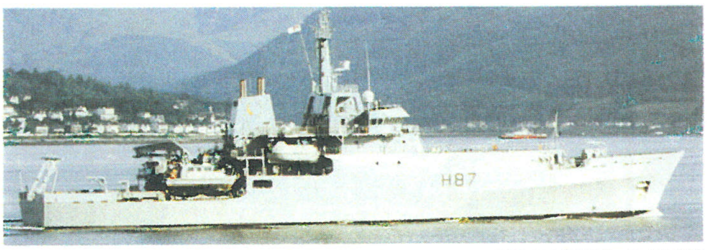


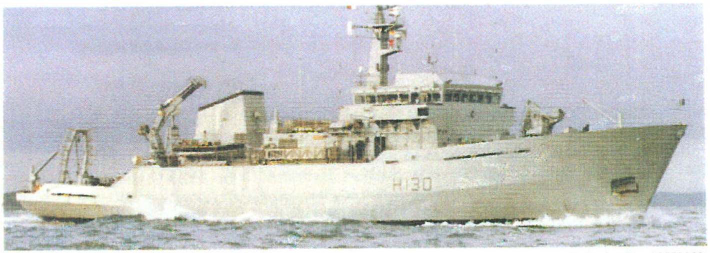
ECHO *6/2003*, H M Steele* / 0572695

1 ROEBUCK CLASS (AGS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
ROEBUCK	H 130	Brooke Marine, Lowestoft	14 Nov 1985	3 Oct 1986

Displacement, tons: 1,477 full load
Dimensions, feet (metres): 210 × 42.6 × 13 *(63.9 × 13 × 4)*
Main machinery: 4 Mirrlees Blackstone ESL8 Mk 1 diesels; 3,040 hp *(2.27 MW)*; 2 shafts; cp props
Speed, knots: 14. **Range, miles:** 4,000 at 10 kt
Complement: 46 (6 officers)
Radars: Navigation: Nautilus 6000C ARPA; I-band.

Comment: Designed for hydrographic surveys to full modern standards on UK continental shelf. Passive tank stabiliser. Qubit SIPS(S) integrated navigation and survey system. Air conditioned. Carries two 9 m surveying motor boats and one 4.5 m RIB. Acts as an MCM support ship when required. The decision to decommission in 2003 was cancelled and a Ship Life Extension Programme is planned to prolong service life to 2014. The ship conducted hydrographic survey of the amphibious operations area prior to the war in Iraq in 2003. Subsequently she undertook the first survey of the port of Umm Qasr for 40 years.
NEW ENTRY



ROEBUCK *11/2003*, B Prézelin* / 0572668

1 GLEANER CLASS (YGS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
GLEANER	H 86	Emsworth Shipyard	18 Oct 1983	5 Dec 1983

Displacement, tons: 26 full load
Dimensions, feet (metres): 48.6 × 15.4 × 5.2 *(14.8 × 4.7 × 1.6)*
Main machinery: 2 Volvo Penta TMD 112; 524 hp(m) *(391 kW)*; 2 shafts
Speed, knots: 14 diesels; 7 centre shaft only
Complement: 5 plus 1 spare bunk
Radars: Navigation: Raytheon R40SX; I-band.

Comment: This craft is prefixed HMSML-HM Survey Motor Launch. Sonar 2094 and Atlas Fansweep multibeam echo sounder.

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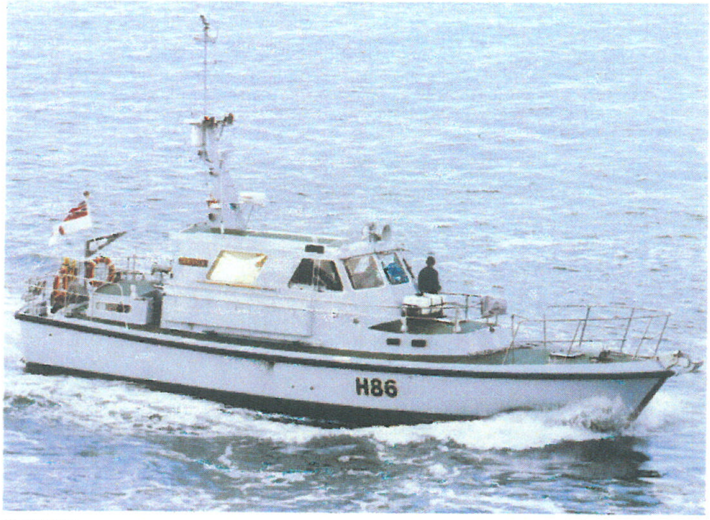

GLEANER *6/2003*, W Sartori* / 0572667

4 NESBITT CLASS (YGS)

NESBITT 9423 **PAT BARTON** 9424 **COOK** 9425 **OWEN** 9426

Displacement, tons: 11 full load
Dimensions, feet (metres): 34.8 × 9.4 × 3.3 *(10.6 × 2.9 × 1)*
Main machinery: 2 Perkins Sabre 185C diesels; 430 hp(m) *(316 kW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 300 at 8 kt
Complement: 2 plus 10 spare

Comment: Delivered by Halmatic, Southampton by September 1996. Fitted with GPS, Ultra 3000 Side scan sonar and Qubit SIPS. In service at the Hydrographic School and are likely to be carried in new survey vessels.

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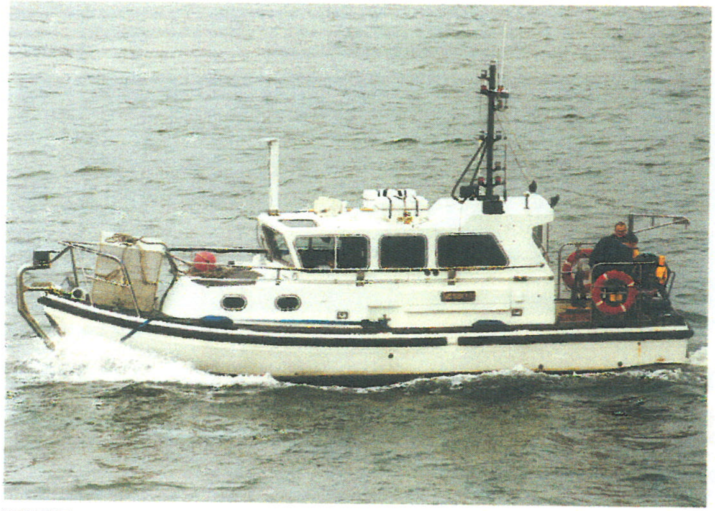

NESBITT *11/1998, John Brodie* / 0053244

RESCUE VEHICLES

Notes: Project definition of a NATO Submarine Rescue System (NSRS), which would be complementary to a new US system under development, was completed by W S Atkins Ltd in late 2001. The three partner nations are UK, Norway and France. Following Invitations to Tender, award of the contract for the Design and Manufacture Phase was due in April 2004. Achievement of an Initial Operating Capability is planned for December 2006. Competing designs include the Perry Slingsby LR7, the Ocean Works PRMS and one other. A rescue centre is likely to be established at Faslane.

1 RESCUE SUBMERSIBLE (DSRV)

LR 5

Displacement, tons: 21.5
Dimensions, feet (metres): 30.2 × 9.8 × 11.5 *(9.2 × 3.0 × 3.5)*
Main machinery: 2 electric motors; 16 hp *(12 kW)*; 2 steerable props; 2 tiltable side thrusters; 9 hp *(6.7 kW)*
Speed, knots: 2.5 dived
Complement: 2

Comment: Manufactured in 1978 by Slingsby Ltd for North Sea commercial operations and subsequently purchased by Royal Navy for whom it is managed, maintained (at 12 hours notice) and operated by James Fisher Rumic Ltd. Capable of operating down to 450 m depth, it can evacuate 16 personnel at a time. Endurance of 6-10 hours. A ROV (Scorpio 45) can also be deployed on a 900 m umbilical for search and/or replenishment of life support stores. To be replaced by NSRS in 2006/07.

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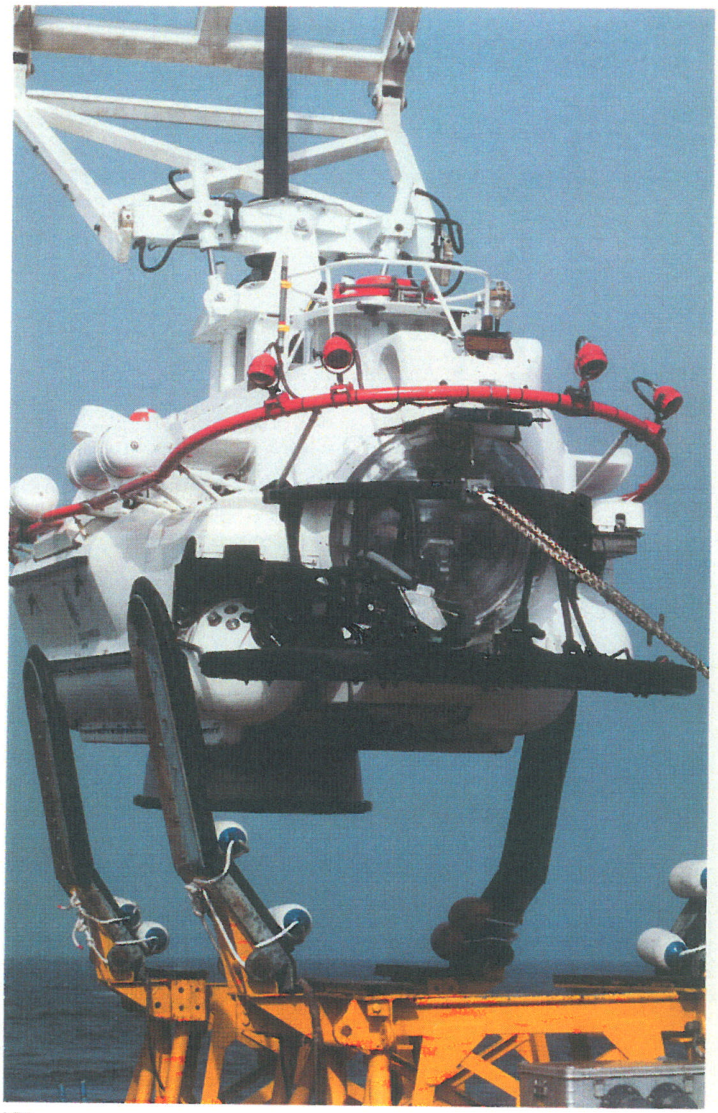

LR5 *12/2000, H M Steele* / 0073841

ROYAL FLEET AUXILIARY SERVICE

Personnel

1 January 2004: 2,274 (891 officers)

General

The Royal Fleet Auxiliary Service is a civilian-manned fleet under the command of the Commander in Chief Fleet from 1 April 1993. Its main task is to supply warships at sea with fuel, food, stores and ammunition. It also provides aviation platforms, amphibious support for the Navy and Marines and sea transport for Army units. All ships take part in operational sea training. An order in council on 30 November 1989 changed the status of the RFA service to government-owned vessels on non-commercial service.

Ships taken up from Trade

The following ships taken up from trade: *Confidante* and *Marine Explorer* operate in home waters under the Hydrographer. *Oil Mariner* (supply), *St Brandan* (ferry), *Indomitable* (tug), all operate in the Falkland Islands.

New Construction

(1) The Joint Casualty Treatment Ship (JCTS), formerly known as the Primary Casualty Receiving Ship (PCRS) is due to enter service in 2007. The requirement for such a ship was identified in the 1998 Strategic Defence Review. The aviation support ship *Argus* was configured as a PCRS during the 1990-91 Gulf War and the 2003 Iraq War. The contract for the Assessment Phase was awarded to BMT Ltd in February 2002 since when the key drivers have been identified as a need for eight operating tables and a 150-200 bed hospital. A two-spot flight deck and the ability to embark personnel by sea or land are also needed. Development of the Systems Requirement Document (SRD) by Atkins Aviation and Defence Systems began in August 2003 and an Invitation to Tender is expected in 2005, following Main Gate decisions. Potential solutions range from a bespoke vessel to conversion/modification of an existing military or merchant hull. The ship will be manned by RFA personnel. The requirement for a second ship at 12 months notice is to be met by chartering a commercial hull.

(2) Plans to provide the future afloat support capability are being taken forward through the Military Afloat Reach and Sustainability programme (MARS). Following a concept phase, Initial Gate is expected in 2004 when options to replace the 'Rover' class and 'Leaf' class in the light of both the Joint Sea Based Logistics and new carrier programmes will be first considered. An overall force of 10-13 ships is anticipated.

2 WAVE CLASS (LARGE FLEET TANKERS) (AORH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
WAVE KNIGHT	A 389	BAE Systems, Barrow	22 Oct 1998	29 Sep 2000	8 Apr 2003
WAVE RULER	A 390	BAE Systems, Govan	10 Feb 2000	9 Feb 2001	27 Apr 2003

Displacement, tons: 31,500 full load
Measurement, tons: 18,200 dwt
Dimensions, feet (metres): 643.2 × 91.2 × 32.8 *(196.0 × 27.8 × 10.0)*
Main machinery: Diesel-electric: 4 Wärtsilä 12V 32E/GECLM diesel generators; 25,514 hp(m) *(18.76 MW)*; 2 GECLM motors; 19,040 hp(m) *(14 MW)*; 1 shaft; Kamewa bow and stern thrusters.
Speed, knots: 18. **Range, miles:** 10,000 at 15 kt
Complement: 80 plus 22 aircrew

Cargo capacity: 16,000 m³ total liquids including 3,000 m³ aviation fuel; 8—20 ft refrigerated containers plus 500 m³ solids
Guns: 2 Vulcan Phalanx CIWS; fitted for but not with. 2—30 mm. 4—7.62 mm MGs.
Countermeasures: Decoys: Outfit DLJ.
Radars: Navigation: KH 1007; E/F/I-band.
IFF: Type 1017.
Helicopters: 1 Merlin HM.Mk 1.

Comment: Feasibility studies by BAeSEMA/YARD completed in early 1995. Draft invitation to tender issued 10 October 1995 followed by full tender on 26 June 1996. Contracts to build placed with VSEL (BAE Systems) on 12 March 1997. One spot flight deck with full hangar facilities for one Merlin. Enclosed bridge including bridge wings. Double hull construction. Inclined RAS gear with three rigs and two cranes.

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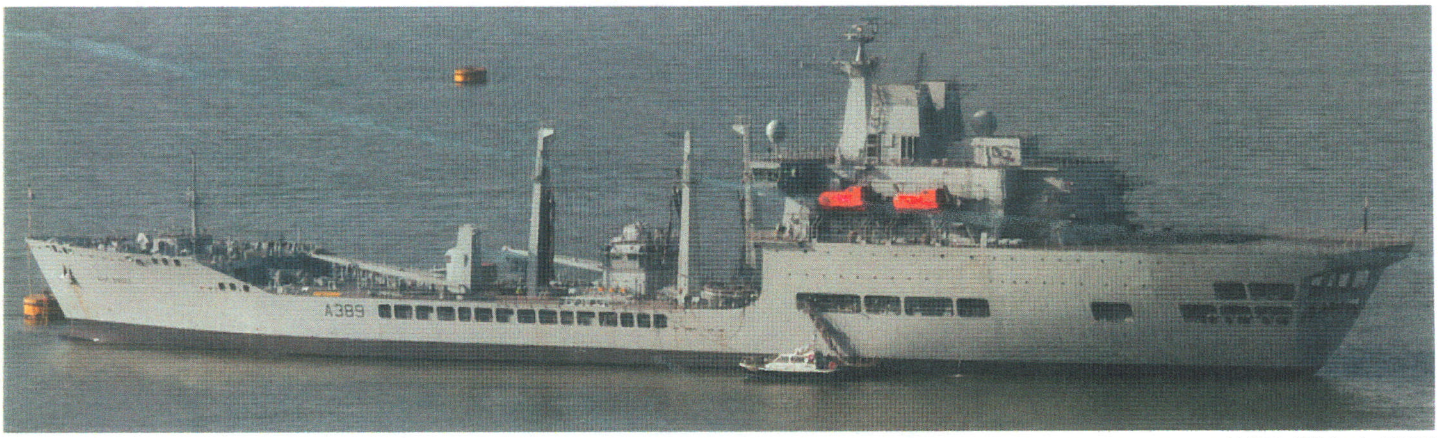

WAVE KNIGHT *11/2002, H M Steele* / 0530076

1 OAKLEAF CLASS (SUPPORT TANKER) (AOR)

Name	*No*	*Builders*	*Commissioned*	*Recommissioned*
OAKLEAF (ex-*Oktania*)	A 111	Uddevalla, Sweden	1981	14 Aug 1986

Displacement, tons: 49,648 full load
Measurement, tons: 37,328 dwt
Dimensions, feet (metres): 570 × 105.6 × 36.7 *(173.7 × 32.2 × 11.2)*
Main machinery: 1 Burmeister & Wain 4L80MCE diesel; 10,800 hp(m) *(7.96 MW)* sustained; 1 shaft; cp prop; bow and stern thrusters

Speed, knots: 14
Complement: 35 (14 officers)
Cargo capacity: 22,000 m³ fuel
Guns: 2—7.62 mm MGs.
Countermeasures: Decoys: 2 Plessey Shield chaff launchers can be fitted.
Radars: Navigation: Racal Decca 1226 and 1229; I-band.

Comment: Acquired in July 1985 and converted by Falmouth Ship Repairers to include full RAS rig and extra accommodation. Handed over on completion and renamed. Single hulled, ice strengthened. Marisat fitted. Major refit in 1994-95. To continue in service until 2015.

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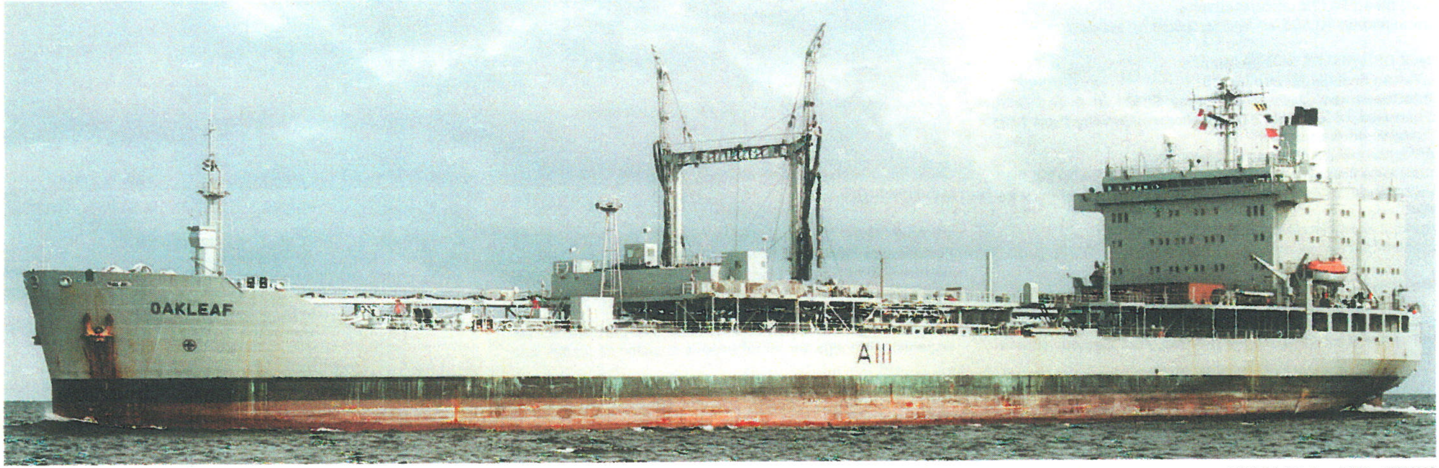

OAKLEAF *6/2001, Michael Nitz* / 0131169

3 APPLELEAF CLASS (SUPPORT TANKERS) (AOR)

Name	*No*	*Builders*	*Launched*	*Commissioned*
BRAMBLELEAF (ex-*Hudson Deep*)	A 81	Cammell Laird, Birkenhead	22 Jan 1976	3 Mar 1980
BAYLEAF	A 109	Cammell Laird, Birkenhead	27 Oct 1981	26 Mar 1982
ORANGELEAF (ex-*Balder London*, ex-*Hudson Progress*)	A 110	Cammell Laird, Birkenhead	—	2 May 1984

Displacement, tons: 37,747 full load (A 109-110); 40,870 (A 81)
Measurement, tons: 20,761 gross; 11,573 net; 29,999 dwt
Dimensions, feet (metres): 560 × 85 × 36.1 *(170.7 × 25.9 × 11)*
Main machinery: 2 Pielstick 14 PC2.2 V 400 diesels; 14,000 hp(m) *(10.29 MW)* sustained; 1 shaft
Speed, knots: 15.5; 16.3 (A 109)
Complement: 56 (19 officers)
Cargo capacity: 22,000 m³ dieso; 3,800 m³ Avcat
Guns: 2 Oerlikon 20 mm. 4—7.62 mm MGs.
Countermeasures: Decoys: 2 Corvus or 2 Plessey Shield launchers.
Radars: Navigation: Racal Decca 1226 and 1229; I-band.

Comment: *Brambleleaf* chartered in 1979-80 and converted, completing Autumn 1979. Part of a four-ship order cancelled by Hudson Fuel and Shipping Co, but completed by the shipbuilders, being the only mercantile order then in hand. *Bayleaf* built under commercial contract to be chartered by MoD. *Orangeleaf* major refit September 1985 to fit full RAS capability and extra accommodation. Single-hull construction. *Appleleaf* sold to Australia in September 1989. Decommissioning dates: *Orangeleaf* 2008; *Brambleleaf* and *Bayleaf* 2009.

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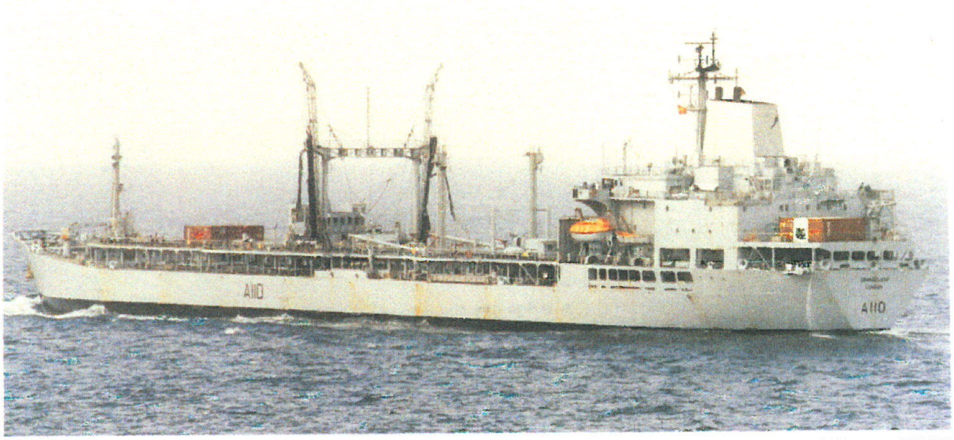

ORANGELEAF *2/2003*, A Sharma* / 0572666

3 ROVER CLASS (SMALL FLEET TANKERS) (AORLH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
GREY ROVER	A 269	Swan Hunter Shipbuilders, Wallsend-on-Tyne	17 Apr 1969	10 Apr 1970
GOLD ROVER	A 271	Swan Hunter Shipbuilders, Wallsend-on-Tyne	7 Mar 1973	22 Mar 1974
BLACK ROVER	A 273	Swan Hunter Shipbuilders, Wallsend-on-Tyne	30 Oct 1973	23 Aug 1974

Displacement, tons: 4,700 light; 11,522 full load
Measurement, tons: 6,692 (A 271, 273), 6,822 (A 269) dwt; 7,510 gross; 3,185 net
Dimensions, feet (metres): 461 × 63 × 24 *(140.6 × 19.2 × 7.3)*
Main machinery: 2 SEMT-Pielstick 16 PA4 185 diesels; 15,360 hp(m) *(11.46 MW)*; 1 shaft; Kamewa cp prop; bow thruster
Speed, knots: 19. **Range, miles:** 15,000 at 15 kt
Complement: 48 (17 officers) (A 269); 55 (18 officers) (A 271, 273)
Cargo capacity: 3,000 m³ fuel

Guns: 2 Oerlikon 20 mm. 2—7.62 mm MGs.
Countermeasures: Decoys: 2 Corvus and 2 Plessey Shield launchers. 1 Graseby Type 182; towed torpedo decoy.
Radars: Navigation: Racal Decca 52690 ARPA; Racal Decca 1690; I-band.
Helicopters: Platform for Westland Sea King HAS. Mk 5 or HC.Mk 4.

Comment: Single-hull construction. Small fleet tankers designed to replenish HM ships at sea with fuel, fresh water, limited dry cargo and refrigerated stores under all conditions while under way. No hangar but helicopter landing platform is served by a stores lift, to enable stores to be transferred at sea by 'vertical lift'. Capable of HIFR. Siting of SATCOM aerial varies. *Green Rover* sold in September 1992 to Indonesia. *Blue Rover* to Portugal in March 1993. All to decommission in 2007.
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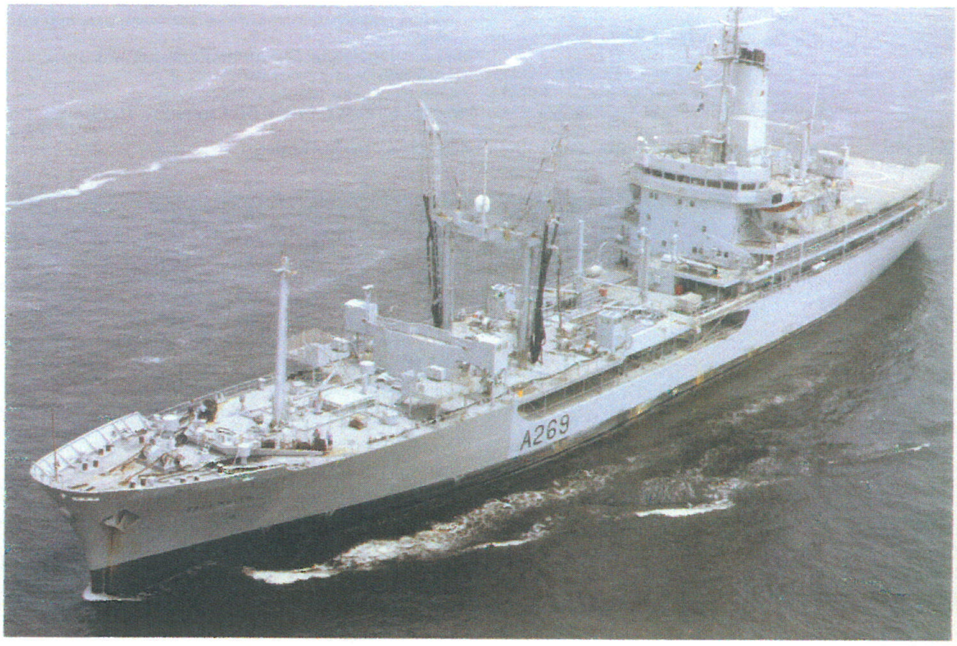
GREY ROVER
6/2003, Kazumasa Watanabe* / 0572665

2 FORT VICTORIA CLASS (FLEET REPLENISHMENT SHIPS) (AORH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
FORT VICTORIA	A 387	Harland & Wolff/Cammell Laird	4 Apr 1988	12 June 1990	24 June 1994
FORT GEORGE	A 388	Swan Hunter Shipbuilders, Wallsend-on-Tyne	9 Mar 1989	1 Mar 1991	16 July 1993

Displacement, tons: 36,580 full load
Dimensions, feet (metres): 667.7 oa; 607 wl × 99.7 × 32 *(203.5; 185 × 30.4 × 9.8)*
Main machinery: 2 Crossley SEMT-Pielstick 16 PC2.6 V 400 diesels; 23,904 hp(m) *(17.57 MW)* sustained; 2 shafts
Speed, knots: 20
Complement: 134 (95 RFA plus 15 RN plus 24 civilian stores staff) plus 154 (28 officers) aircrew
Cargo capacity: 12,505 m³ liquids; 3,000 m³ solids

Guns: 2 DES/MSI DS 30B 30 mm/75.
2 Vulcan Phalanx 20 mm Mk 15.
Countermeasures: Decoys: 4 Plessey Shield or 4 Sea Gnat 6-barrelled 130 mm/102 mm launchers. Graseby Type 182; towed torpedo decoy.
ESM: Marconi Racal Thorn UAT; intercept.
Combat data systems: Marconi Matra SCOT 1D SATCOM.
Radars: Air search: Plessey Type 996; 3D; E/F-band (can be fitted).
Navigation: Kelvin Hughes Type 1007; I-band.
Aircraft control: Kelvin Hughes NUCLEUS; E/F-band.

Helicopters: 5 Westland Sea King/Merlin helicopters.

Programmes: The requirement for these ships is to provide fuel and stores support to the Fleet at sea. *Fort Victoria* ordered 23 April 1986 and *Fort George* on 18 December 1987. *Fort Victoria* delayed by damage during building and entered Cammell Laird Shipyard for post sea trials completion in July 1992. The original plan for six of this class was progressively eroded and no more of this type will be built.
Structure: Single-hull construction. Four dual-purpose abeam replenishment rigs for simultaneous transfer of liquids and solids. Stern refuelling. Repair facilities for Merlin helicopters. The plan to fit Seawolf GWS 26 VLS has been abandoned in favour of Phalanx CIWS fitted in 1998/99 to both ships.
Operational: Two helicopter spots. There is a requirement to provide an emergency landing facility for Sea Harriers.
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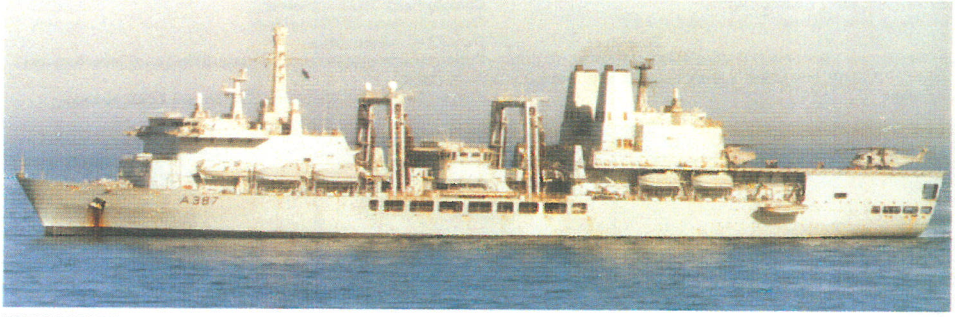

FORT VICTORIA
4/2003, A Sharma* / 0572664

2 FORT GRANGE CLASS (FLEET REPLENISHMENT SHIPS) (AFSH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
FORT ROSALIE (ex-*Fort Grange*)	A 385	Scott-Lithgow, Greenock	9 Nov 1973	9 Dec 1976	6 Apr 1978
FORT AUSTIN	A 386	Scott-Lithgow, Greenock	9 Dec 1975	9 Mar 1978	11 May 1979

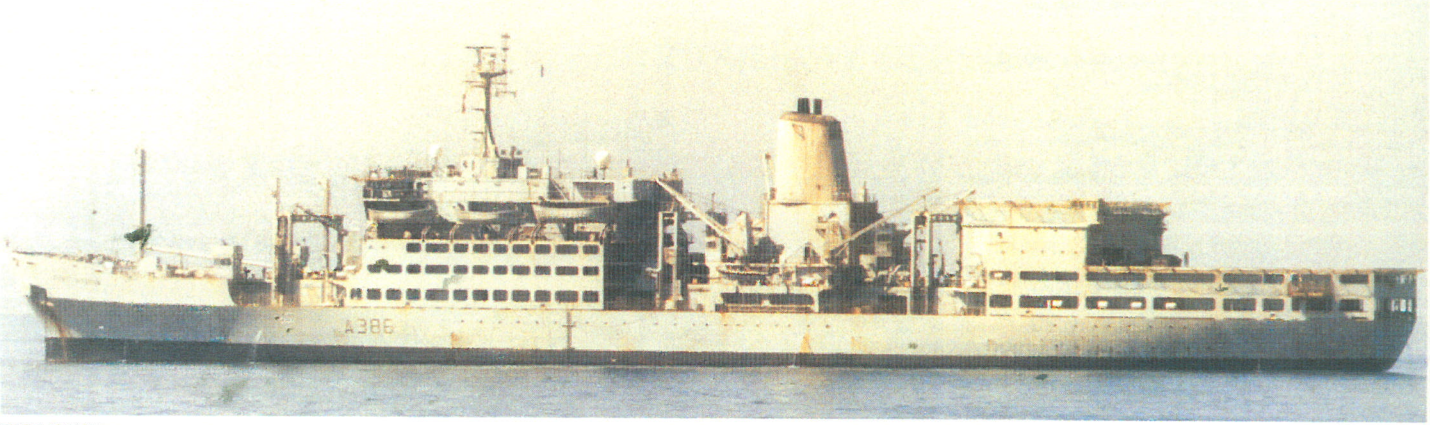
Displacement, tons: 23,384 full load
Measurement, tons: 8,300 dwt
Dimensions, feet (metres): 607.4 × 79 × 28.2 *(185.1 × 24.1 × 8.6)*
Main machinery: 1 Sulzer RND90 diesel; 23,200 hp(m) *(17.05 MW)*; 1 shaft; 2 bow thrusters
Speed, knots: 22. **Range, miles:** 10,000 at 20 kt

Complement: 114 (31 officers) plus 36 RNSTS (civilian supply staff) plus 45 RN aircrew
Cargo capacity: 3,500 tons armament, naval and victualling stores in 4 holds of 12,800 m³

Guns: 2 Oerlikon 20 mm. 4—7.62 mm MGs.
Countermeasures: Decoys: 2 Corvus or 2 Plessey Shield launchers (upper bridge).

Radars: Navigation: Kelvin Hughes Type 1007; I-band.
Helicopters: 4 Westland Sea King.

Comment: Ordered in November 1971. Fitted for SCOT SATCOMs but carry Marisat. Normally only one helicopter is embarked. ASW stores for helicopters carried on board. Emergency flight deck on the hangar roof. There are six cranes, three of 10 tons lift and three of 5 tons. ***UPDATED***


FORT AUSTIN
3/2003, A Sharma* / 0572663

1 STENA TYPE (FORWARD REPAIR SHIP) (ARH)

Name	*No*	*Builders*	*Commissioned*	*Recommissioned*
DILIGENCE (ex-*Stena Inspector*)	A 132	Oresundsvarvet AB, Landskrona, Sweden	1981	12 Mar 1984

Displacement, tons: 10,765 full load

Measurement, tons: 6,550 gross; 4,939 dwt

Dimensions, feet (metres): 367.5 × 67.3 × 22.3 *(112 × 20.5 × 6.8)*

Flight deck, feet (metres): 83 × 83 *(25.4 × 25.4)*

Main machinery: Diesel-electric; 5 V16 Nohab-Polar diesel generators; 2,650 kW; 4 NEBB motors; 6,000 hp(m) *(4.41 MW)*; 1 shaft; Kamewa cp prop; 2 Kamewa bow tunnel thrusters; 3,000 hp(m) *(2.2 MW)*; 2 azimuth thrusters (aft); 3,000 hp(m) *(2.2 MW)*

Speed, knots: 12. **Range, miles:** 5,000 at 12 kt

Complement: 38 (15 officers) plus accommodation for 147 plus 55 temporary

Cargo capacity: Long-jib crane SWL 5 tons; maximum lift, 40 tons

Guns: 4 Oerlikon 20 mm. 3—7.62 mm MGs.

Countermeasures: Decoys: Outfit DLE; 4 Plessey Shield 102 mm 6-tubed launchers.

Helicopters: Facilities for up to Boeing Chinook HC. Mk 1 (medium lift) size.

Programmes: *Stena Inspector* was designed originally as a Multipurpose Support Vessel for North Sea oil operations, and completed in January 1981. Chartered on 25 May 1982 for use as a fleet repair ship during the Falklands War. Purchased from Stena (UK) Line in October 1983, and converted for use as Forward Repair Ship in the South Atlantic (Falkland Islands). Conversion by Clyde Dock Engineering Ltd, Govan from 12 November 1983 to 29 February 1984.

Modernisation: Following items added during conversion: large workshop for hull and machinery repairs (in well-deck); accommodation for naval Junior Rates (new accommodation block); accommodation for crew of conventional submarine (in place of Saturation Diving System); extensive craneage facilities; overside supply of electrical power, water, fuel, steam, air, to ships alongside; large naval store (in place of cement tanks); armament and magazines; Naval Communications System; decompression chamber.

Structure: Four 5 ton anchors for four-point mooring system. Strengthened for operations in ice (Ice Class 1A). Kongsberg Albatross Positioning System has been retained in full. Uses bow and stern thrusters and main propeller to maintain a selected position to within a few metres, up to Beaufort Force 9. Controlled by Kongsberg KS 500 computers.

Operational: Falkland Islands support team (Naval Party 2010) embarked when the ship is in the South Atlantic. Has also been used as MCMV support ship in the Gulf. Due to decommission in 2006.

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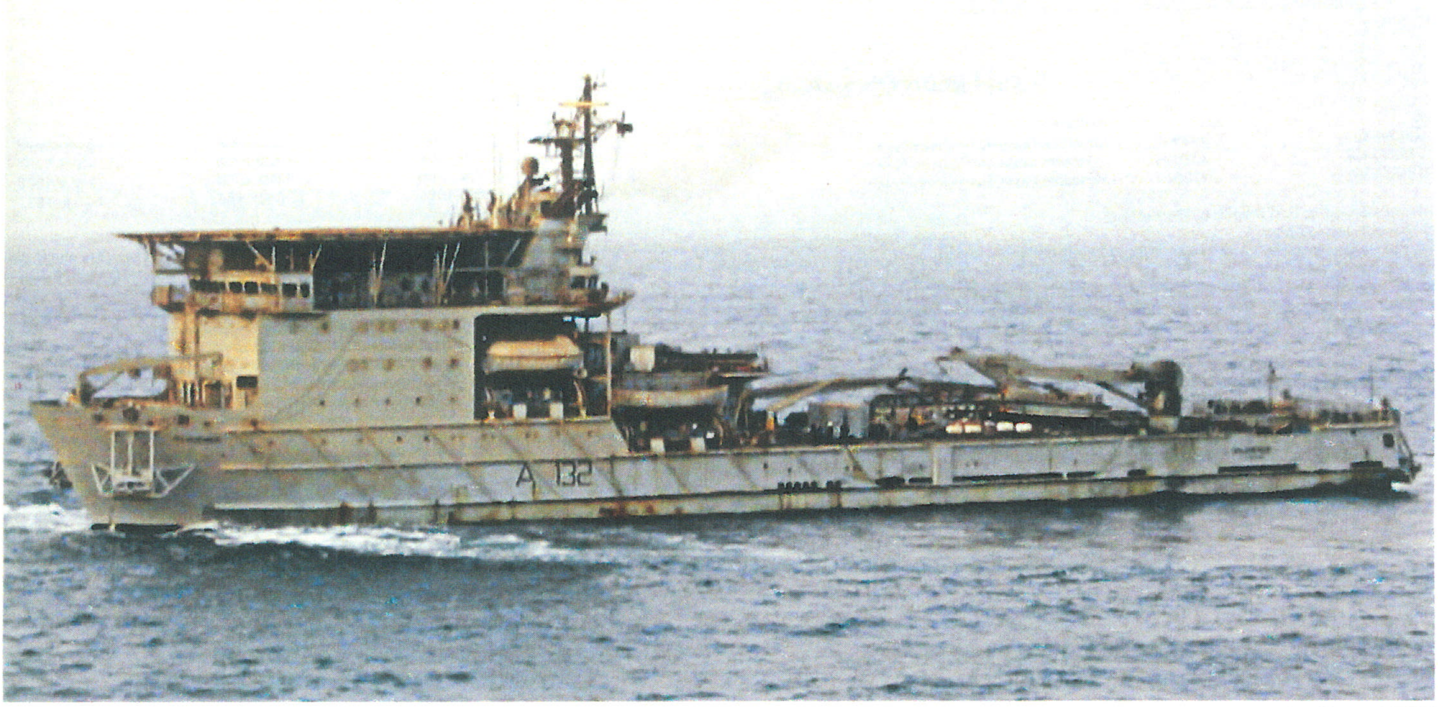


DILIGENCE *3/2003**, *A Sharma* / 0572704

1 AVIATION TRAINING SHIP (HSS/APCR)

Name	*No*	*Builders*	*Commissioned*	*Recommissioned*
ARGUS (ex-*Contender Bezant*)	A 135	CNR Breda, Venice	1981	1 June 1988

Displacement, tons: 18,280 standard; 26,421 full load

Measurement, tons: 9,965 dwt

Dimensions, feet (metres): 574.5 × 99.7 × 27 *(175.1 × 30.4 × 8.2)*

Main machinery: 2 Lindholmen SEMT-Pielstick 18 PC2.5 V 400 diesels; 23,400 hp(m) *(17.2 MW)* sustained; 2 shafts

Speed, knots: 18. **Range, miles:** 20,000 at 19 kt

Complement: 80 (22 officers) plus 35 permanent RN plus 137 RN aircrew

Military lift: 3,300 tons dieso; 1,100 tons aviation fuel; 138 4 ton vehicles in lieu of aircraft

Guns: 4 BMARC 30 mm Mk 1. 4—7.62 mm MGs.

Countermeasures: Decoys: Outfit DLB; 4 Sea Gnat 130 mm/102 mm launchers. Graseby Type 182; torpedo decoy.

ESM: THORN EMI Guardian; radar warning.

Combat data systems: Racal CANE DEB-1 data automation. Inmarsat SATCOM communications. Marisat.

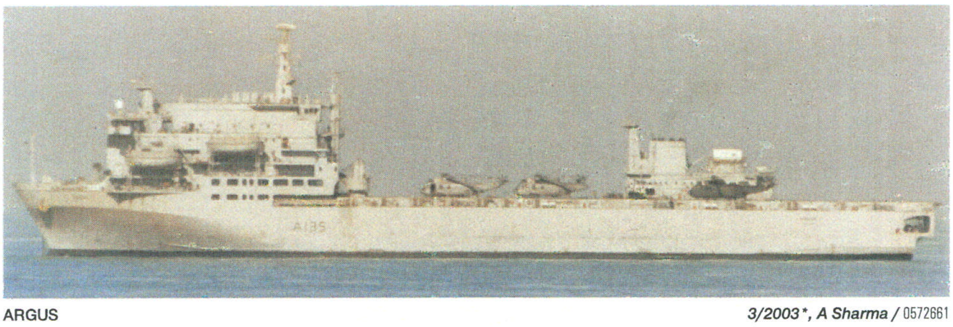
Radars: Air search: Type 994 MTI; E/F-band.

Air/surface search: Kelvin Hughes Type 1006; I-band.

Navigation: Racal Decca Type 994; I-band.

Fixed-wing aircraft: Provision to transport 12 BAe Sea Harrier FA-2.

Helicopters: 6 Westland Sea King HAS.Mk 5/6 or similar.



ARGUS *3/2003**, *A Sharma* / 0572661

Programmes: Ro-Ro container ship whose conversion for her new task was begun by Harland and Wolff in March 1984 and completed on 3 March 1988.

Structure: Uses former ro-ro deck as hangar with four sliding WT doors able to operate at a speed of 10 m/min. Can replenish other ships underway. One lift port midships, one abaft funnel. Domestic facilities are very limited if she is to be used in the Command support role. Flight deck is 372.4 ft *(113.5 m)* long and has a 5 ft thick concrete layer on its lower side. First RFA to be fitted with a command system. Ability to conduct subsidiary role as Primary Casualty Receiving Ship improved significantly following upgrade period completed late 2001. This included conversion of three decks into permanent 100-bed hospital with three operating theatres.

Operational: To decommission in 2008.

UPDATED

6 TRANSPORT SHIPS (AKR)

Name	*No*	*Builders*	*Commissioned*
HURST POINT	–	Flensburger Schiffbau	16 Aug 2002
HARTLAND POINT	–	Harland & Wolff, Belfast	11 Dec 2002
EDDYSTONE	–	Flensburger Schiffbau	28 Nov 2002
ANVIL POINT	–	Harland & Wolff, Belfast	17 Jan 2003
LONGSTONE	–	Flensburger Schiffbau	24 Apr 2003
BEACHY HEAD	–	Flensburger Schiffbau	17 Apr 2003

Displacement, tons: 20,000 full load

Measurement, tons: 14,200 dwt

Dimensions, feet (metres): 633.4 × 85.3 × 24.3 *(193.0 × 26.0 × 7.4)*

Main machinery: 2 MaK 9M43 diesels; 21,700 hp *(16.2 MW)*; 2 cp props; bow thruster

Speed, knots: 21.5. **Range, miles:** 9,200 at 21.5 kt

Complement: 18

Military lift: 2,650 linear metres of space for vehicles equating to 130 armoured vehicles plus 60 trucks and ammunition.

Radars: Navigation: I-band.

HURST POINT *6/2003**, *Marian Ferrette* / 0572662

Comment: On 26 October 2000, it was announced that AWSR Ltd had been awarded the contract to provide a strategic sealift service in support of the Joint Rapid Reaction Force (JRRF) until late 2024. A key feature of the contract is that four Ro-Ro will be in constant MoD use while the remaining ships will be available for use by AWSR for the generation of commercial revenue. These can be called upon to support major operations and exercises.

UPDATED

0 + 4 BAY CLASS LANDING SHIPS DOCK (AUXILIARY) (LSD)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
LARGS BAY	L 3006	Swan Hunter (Tyneside) Ltd	1 Oct 2001	18 July 2003	Dec 2004
LYME BAY	L 3007	Swan Hunter (Tyneside) Ltd	2003	Apr 2005	Dec 2005
MOUNTS BAY	L 3008	BAE Systems Govan	24 Feb 2003	9 Apr 2004	2004
CARDIGAN BAY	L 3009	BAE Systems Govan	Apr 2004	Mar 2005	2005

Displacement, tons: 16,160 full load
Dimensions, feet (metres): 577.6 × 86.6 × 19 *(176 × 26.4 × 5.8)*
Main machinery: Diesel-electric; 2 steerable propulsors
Speed, knots: 18. **Range, miles:** 8,000 at 15 kt
Complement: 60 (plus 356 troops)

Military lift: 1,150 linear metres of space for vehicles equating to 36 Challenger MBTs or 150 light trucks plus 200 tons ammunition
Radars: Navigation: I-band.
Helicopters: Platform capable of operating Chinook.

Programmes: Two ships ordered from Swan Hunter on 18 December 2000 to enter Royal Fleet Auxiliary service to replace RFAs *Sir Percivale* and *Sir Geraint*. Contract for two further ships of the class, to replace RFAs *Sir Galahad* and *Sir Tristram* placed on 19 November 2001 with BAE Systems (Marine) at Govan.

Structure: Based on the Dutch LPD *Rotterdam*, the LSD(A)s are designed to transport troops, vehicles, ammunition and stores in support of amphibious operations. Offload is enabled by a flight deck capable of operating heavy helicopters, an amphibious dock capable of operating one LCU and mexeflotes which can be hung on the ships' sides. There is no beaching capability. Davit-launched infantry landing craft (LCVPs) are not fitted but two can be carried in the dock.

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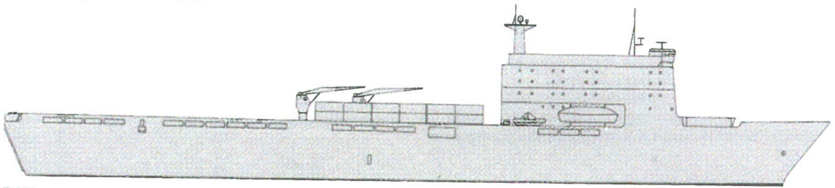


LARGS BAY

(Scale 1 : 1,500), Ian Sturton / 0530057

3 SIR BEDIVERE CLASS (LANDING SHIPS LOGISTIC) (LSLH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SIR BEDIVERE	L 3004	Hawthorn Leslie, Hebburn-on-Tyne	Oct 1965	20 July 1966	18 May 1967
SIR PERCIVALE	L 3036	Hawthorn Leslie, Hebburn-on-Tyne	Apr 1966	4 Oct 1967	23 Mar 1968
SIR TRISTRAM	L 3505	Hawthorn Leslie, Hebburn-on-Tyne	Feb 1966	12 Dec 1966	14 Sep 1967

Displacement, tons: 3,270 light; 5,674 full load 6,700 full load (SLEP)
Dimensions, feet (metres): 412.1; 441.1 (SLEP) × 59.8 × 13 *(125.6; 134.4 × 18.2 × 4)*
Main machinery: 2 Mirrlees 10-ALSSDM diesels; 9,400 hp *(7.01 MW)* or 2 Wärtsilä 280 V12 diesels; 9,928 hp(m) *(7.3 MW)* sustained (SLEP); 2 shafts; bow thruster; 980 hp(m) *(720 kW)* (SLEP)
Speed, knots: 17. **Range, miles:** 8,000 at 15 kt
Complement: 51 (18 officers); 49 (15 officers) (SLEP)
Military lift: 340 troops (534 hard lying); 17 or 18 (SLEP) MBTs; 34 mixed vehicles; 120 tons POL; 30 tons ammunition; 1—25 ton crane; 2—4.5 ton cranes. Increased capacity for 20 helicopters (11 tank deck and 9 vehicle deck) after SLEP

Guns: 2 or 4 Oerlikon 20 mm. 4—7.62 mm MGs.
Countermeasures: Decoys: 2 Plessey Shield chaff launchers.
Radars: Navigation: Kelvin Hughes Type 1006 or Racal Decca 2690; I-band.
Aircraft control: Kelvin Hughes Type 1007; I-band (SLEP).
Helicopters: Platforms to operate Gazelle or Lynx or Chinook (SLEP) or Sea King.

Comment: Fitted for bow and stern loading with drive-through facilities and deck-to-deck ramps. Facilities provided for onboard maintenance of vehicles and for laying out pontoon equipment. Mexeflote self-propelled floating platforms can be strapped one on each side. On 8 June 1982 *Sir Tristram* was severely damaged off the Falkland Islands. Tyne Shiprepairers were given a contract to repair and modify her. This included lengthening by 29 ft, an enlarged flight deck capable of taking Chinooks, a new bridge and twin masts. The aluminium superstructure was replaced by steel and the provision of new communications, an EMR, SATCOM, new navigation systems and helicopter control radar greatly increase her effectiveness. Completed 9 October 1985. *Sir Bedivere* had a similar SLEP in Rosyth from December 1994 to January 1998, including new main engines, a new bridge, and the helicopter platform lowered by one deck, which has reduced the size of the stern ramp. Plans to SLEP *Sir Percivale* were abandoned. Planned decommissioning dates are: *Sir Tristram* in 2004; *Sir Percivale* in 2005 and *Sir Bedivere* in 2011. All based at Southampton.

UPDATED

SIR PERCIVALE

3/2003, A Sharma* / 0572660

SIR BEDIVERE

7/2003, Maritime Photographic* / 0572705

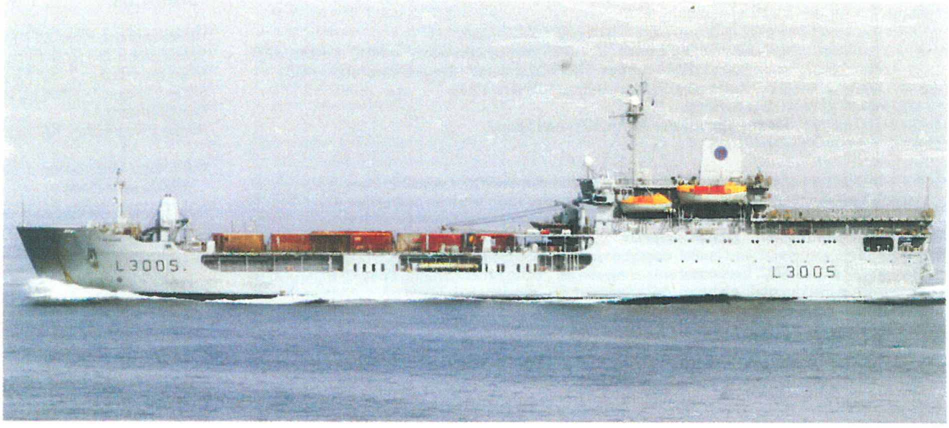
1 SIR GALAHAD CLASS (LSLH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SIR GALAHAD	L 3005	Swan Hunter Shipbuilders, Wallsend-on-Tyne	12 May 1985	13 Dec 1986	25 Nov 1987

Displacement, tons: 8,585 full load
Dimensions, feet (metres): 461 × 64 × 14.1 *(140.5 × 19.5 × 4.3)*
Main machinery: 2 Mirrlees-Blackstone diesels; 13,320 hp *(9.94 MW)*; 2 shafts; cp props
Speed, knots: 18. **Range, miles:** 13,000 at 15 kt
Complement: 49 (15 officers)
Military lift: 343 troops (537 hard-lying); 18 MBT; 20 mixed vehicles; ammunition, fuel and stores

Guns: 2 Oerlikon 20 mm GAM-BO3. 2—12.7 mm MGs.
Countermeasures: Decoys: 4 Plessey Shield 102 mm 6-tubed launchers.
Combat data systems: Racal CANE data automation.
Radars: Navigation: Kelvin Hughes Type 1007; I-band.
Helicopters: 1 Westland Sea King HC.Mk 4.

Comment: Ordered on 6 September 1984 as a replacement for *Sir Galahad*, sunk as a war grave after air attack at Bluff Cove, Falkland Islands on 8 June 1982. Has bow and stern ramps with a visor bow gate. One 25 ton and three 8.6 ton cranes. Up to four (total) Mexeflote pontoons can be attached on both sides of the hull superstructure. To be replaced by 'Bay' class LSD(A) in August 2005. Based at Southampton. ***UPDATED***



SIR GALAHAD *7/2003** / 0572706

ROYAL MARITIME AUXILIARY AND GOVERNMENT AGENCY SERVICES

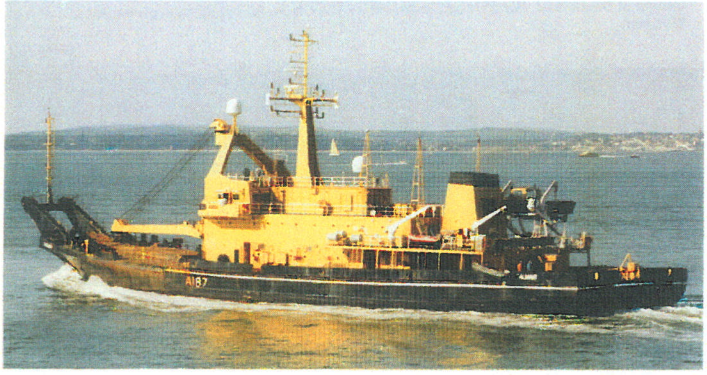
Notes: (1) In early 2004, a total of 9 vessels were still operated by the RMAS. The remainder of ships in this section are MoD assets and retain the RMAS markings but are operated either by SERCO-Denholm, and fly the Government Services (GS) ensign, or are classified as Government Furnished Equipment (GFE) and operated by contractors shown, or are Defence Research Agency vessels.
(2) *Longbow* is a 12,000 ton trials barge whose conversion 2003-04 by FSL Portsmouth includes a mast, missile silo and firing system to facilitate PAAMS development trials.

2 SAL CLASS (MOORING SHIPS) (ARSD)

Name	*No*	*Builders*	*Commissioned*
SALMOOR	A 185	Hall Russell, Aberdeen	12 Nov 1985
SALMAID	A 187	Hall Russell, Aberdeen	28 Oct 1986

Displacement, tons: 1,605 light; 2,225 full load
Dimensions, feet (metres): 253 × 48.9 × 12.5 *(77 × 14.9 × 3.8)*
Main machinery: 2 Ruston 8RKC diesels; 4,000 hp *(2.98 MW)* sustained; 1 shaft; cp prop
Speed, knots: 15
Complement: 17 (4 officers) plus 27 spare billets
Radars: Navigation: Racal Decca; I-band.

Comment: Ordered on 23 January 1984. *Salmoor* on the Clyde and *Salmaid* at Devonport. Lift, 400 tons; 200 tons on horns. Can carry submersibles including LR 5. Both operated by RMAS. ***VERIFIED***



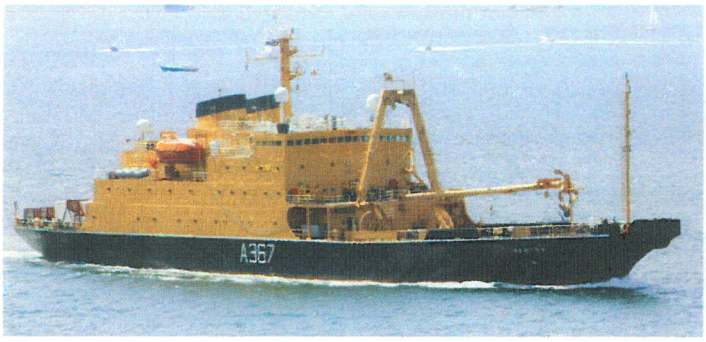
SALMAID *7/2002, Derek Fox* / 0529946

1 SUPPORT SHIP (AG)

Name	*No*	*Builders*	*Commissioned*
NEWTON	A 367	Scott-Lithgow, Greenock	17 June 1976

Displacement, tons: 3,140 light; 4,652 full load
Dimensions, feet (metres): 323.5 × 53 × 18.5 *(98.6 × 16 × 5.7)*
Main machinery: Diesel-electric; 3 Ruston 8 RK-215 diesels; 5,520 hp *(4.06 MW)*; 1 GEC motor; 2,040 hp *(1.52 MW)*; Kort nozzle; bow thruster
Speed, knots: 14. **Range, miles:** 5,000 at 14 kt
Complement: 24
Radars: Navigation: Kelvin Hughes 1006; I-band.

Comment: Primarily used in support of RN training exercises. Limited support provided to trials. Refitted in 2001. Operated by the RMAS. ***UPDATED***



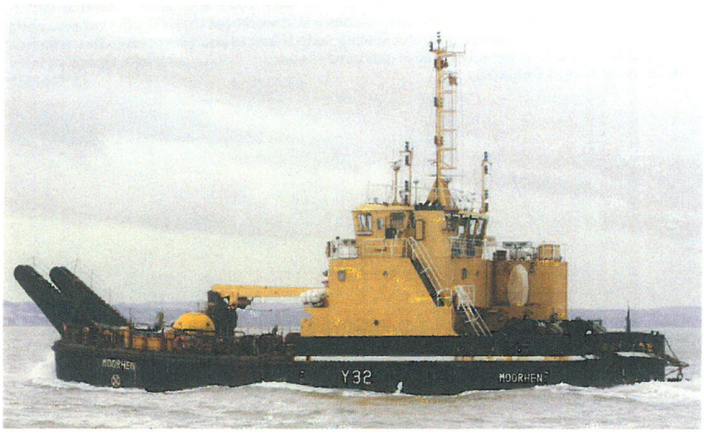
NEWTON *7/2003*, B Sullivan* / 0572707

3 MOORHEN CLASS (MOORING SHIPS) (ARS)

Name	*No*	*Builders*	*Commissioned*
MOORHEN	Y 32	McTay, Bromborough	26 Apr 1989
MOORFOWL	Y 33	McTay, Bromborough	30 June 1989
CAMERON	A 72	Dunston, Hessle	31 May 1991

Displacement, tons: 530 full load
Dimensions, feet (metres): 106 × 37.7 × 6.6 *(32.3 × 11.5 × 2)*
Main machinery: 2 Cummins KT19-M diesels; 730 hp *(545 kW)* sustained; 2 Aquamasters; bow thruster
Speed, knots: 8
Complement: 10 (2 officers) plus 2 divers

Comment: Classified as powered mooring lighters. The whole ship can be worked from a 'flying bridge' which is constructed over a through deck. Day mess for five divers. *Moorhen* at Portsmouth, *Moorfowl* at Devonport are RMAS vessels. *Cameron* works for DERA (Maritime) and is modified as a trials support vessel. ***UPDATED***



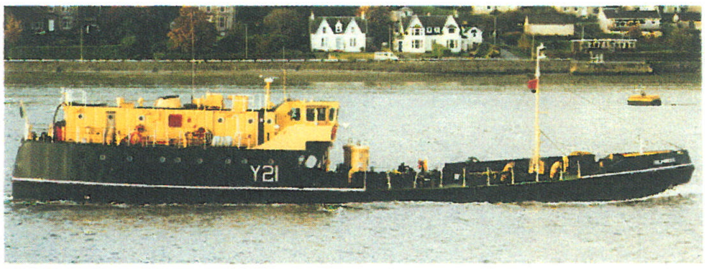
MOORHEN *2/2003*, Maritime Photographic* / 0572708

1 OILPRESS CLASS (COASTAL TANKER) (AOTL)

Name	*No*	*Builders*	*Launched*
OILPRESS	Y 21	Appledore Ferguson	29 Aug 1968

Displacement, tons: 280 standard; 530 full load
Dimensions, feet (metres): 139.5 × 30 × 8.3 *(42.5 × 9 × 2.5)*
Main machinery: 1 Lister-Blackstone ES6 diesel; 405 hp *(302 kW)*; 1 shaft
Speed, knots: 9
Complement: 8 (3 officers)
Cargo capacity: 250 tons dieso

Comment: Ordered on 10 May 1967. GS ship on the Clyde. ***VERIFIED***



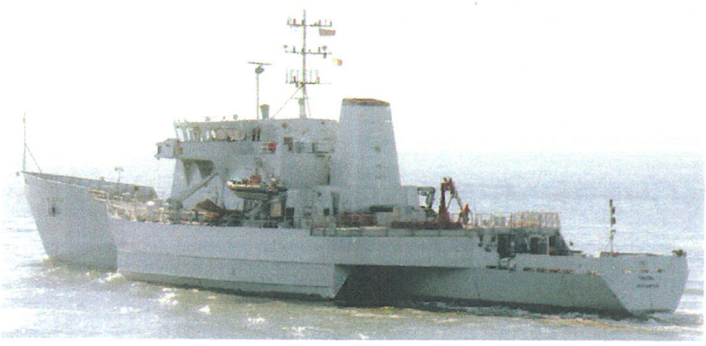
OILPRESS *10/1998, M Declerck* / 0053258

1 TRIALS SHIP (AGEH)

Name	*No*	*Builders*	*Launched*	*Commissioned*
TRITON	—	Vosper Thornycroft, Woolston	6 May 2000	31 Aug 2000

Displacement, tons: 1,100 full load
Dimensions, feet (metres): 321.5 × 73.8 × 10.5 *(98 × 22.5 × 3.2)*
Main machinery: Diesel electric; 2 Paxman 12V 185 diesel generators; 4 MW; 1 HMA motor 3.5 MW; 1 shaft (centreline); 2 HMA motors; 700 kW; 2 Schottel propulsors (outer hulls)
Speed, knots: 20; 8 (outer hulls only). **Range, miles:** 3,000 at 12 kt
Complement: 12 plus 12 scientists
Radars: Navigation: Racal Bridgemaster ARPA; E/F- and I-band.
Helicopters: Platform for 1 Lynx.

Comment: Contract placed in July 1998 for a trimaran demonstrator vessel to investigate warship applications. First steel cut 11 January 1999. The side hulls have an overall length of 111.5 ft *(34 m)*. The ship is owned and operated by the Defence Evaluation Research Agency (DERA) and the instrumentation system supplied by the USN. Phase 1 US/UK trials, consisting of seakeeping, structural and naval operations trials, completed in Spring 2002. Launch and recovery of a Lynx Mk 8 helicopter was achieved on 25 July 2001. During Phase 2 trials the ship is to act as a system trials platform. Recent trials have included the use of a composite propeller.
UPDATED


TRITON *10/2003*, Maritime Photographic* / 0572709

1 RESEARCH SHIP (AGOR)

Name	*No*	*Builders*	*Commissioned*
COLONEL TEMPLER (ex-*Criscilla*)	A 229	Hall Russell, Aberdeen	1966

Displacement, tons: 1,300 full load
Dimensions, feet (metres): 185.4 × 36 × 18.4 *(56.5 × 11 × 5.6)*
Main machinery: Diesel-electric; 2 Cummins KTA-38G4M diesels; 2,557 hp(m) *(1.88 MW)* sustained; 2 Newage HC M734E1 generators; 1 Amsaldo DH 560S motor; 2,312 hp(m) *(1.7 MW)*; 1 Aquamaster azimuth thruster with contra rotating props
Speed, knots: 13.5
Complement: 14 plus 12 scientists
Radars: Navigation: Racal Decca 2690 ARPA; I-band.

Comment: Built as a stern trawler. Converted in 1980 for use at RAE Farnborough as an acoustic research ship. Major rebuild in 1992. Re-engined in early 1997 with a raft mounted diesel-electric plant to reduce noise and vibration. Carries a 9 m workboat *Quest* Q 26. Well equipped laboratories. Capable of deploying and recovering up to 5 tons of equipment from deck winches and a 5 ton hydraulic A frame. The ship is also used to support diving operations. Operated from the Clyde by SERCO Denholm.
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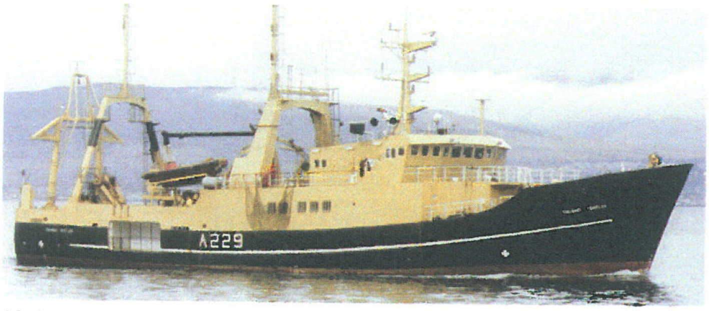
COLONEL TEMPLER *7/2002, H M Steele* / 0530049

1 ARMAMENT STORE CARRIER (AETL)

Name	*No*	*Builders*	*Commissioned*
KINTERBURY	A 378	Appledore Ferguson SB	Nov 1980

Displacement, tons: 2,207 full load
Measurement, tons: 1,150 dwt
Dimensions, feet (metres): 231.2 × 39 × 15 *(70.5 × 11.9 × 4.6)*
Main machinery: 2 Mirrlees-Blackstone diesels; 3,000 hp *(2.24 MW)*; 1 shaft
Speed, knots: 14.5. **Range, miles:** 4,000 at 11 kt
Complement: 24 (8 officers)
Radars: Navigation: Kelvin Hughes 1006; I-band.

Comment: Carries armament stores in two holds. RMAS ship based at Portsmouth. One of the class sold to Ecuador in 1992.
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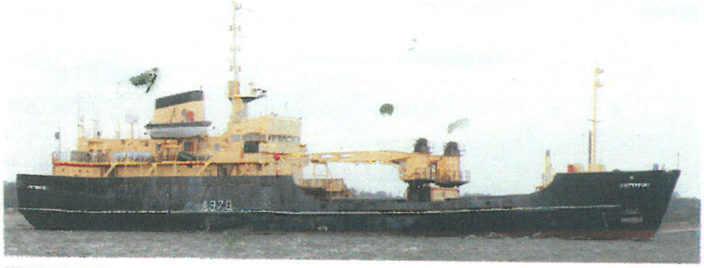
KINTERBURY *10/2003*, Maritime Photographic* / 0572710

2 TORNADO CLASS (TORPEDO RECOVERY VESSELS) (YDT/YPT)

Name	*No*	*Builders*	*Commissioned*
TORNADO	A 140	Hall Russell, Aberdeen	15 Nov 1979
TORMENTOR	A 142	Hall Russell, Aberdeen	29 Apr 1980

Displacement, tons: 698 full load
Dimensions, feet (metres): 154.5 × 26.2 × 11.3 *(47.1 × 8.0 × 3.4)*
Main machinery: 2 Mirrlees-Blackstone ESL8 MCR diesels; 2,200 hp *(1.64 MW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 3,000 at 14 kt
Complement: 14
Radars: Navigation: Kelvin Hughes 1006; I-band.

Comment: Ordered on 1 July 1977. GS vessels on the Clyde. Both ships converted to support diving operations.
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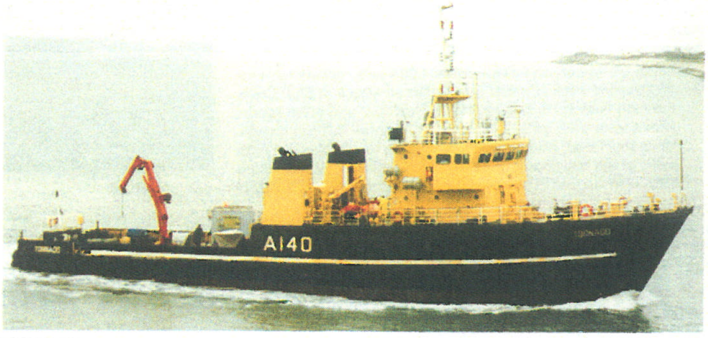
TORNADO *12/1999, W Sartori* / 0075841

9 ADEPT CLASS (COASTAL TUGS) (YTB)

FORCEFUL A 221
NIMBLE A 222
POWERFUL A 223
ADEPT A 224
BUSTLER A 225
CAPABLE A 226
CAREFUL A 227
FAITHFUL A 228
DEXTEROUS A 231

Displacement, tons: 450
Dimensions, feet (metres): 127.3 × 30.8 × 11.2 *(38.8 × 9.4 × 3.4)*
Main machinery: 2 Ruston 6RKC diesels; 3,000 hp *(2.24 MW)* sustained; 2 Voith-Schneider props
Speed, knots: 12
Complement: 10

Comment: 'Twin unit tractor tugs' (TUTT). First four ordered from Richard Dunston (Hessle) on 22 February 1979 and next five on 8 February 1984. Primarily for harbour work with coastal towing capability. Nominal bollard pull, 27.5 tons. *Adept* accepted 28 October 1980, *Bustler* 15 April 1981, *Capable* 11 September 1981, *Careful* 12 March 1982, *Forceful* 18 March 1985, *Nimble* 25 June 1985, *Powerful* 30 October 1985, *Faithful* 21 December 1985, *Dexterous* 23 April 1986. *Powerful* and *Bustler* at Portsmouth, *Forceful, Faithful, Adept* and *Careful* at Devonport, *Nimble* and *Dexterous* on the Clyde. All are GS vessels except *Capable* at Gibraltar.
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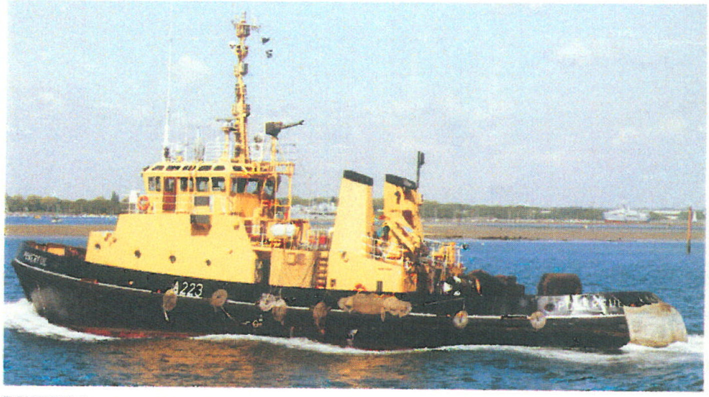
POWERFUL *10/2003*, Maritime Photographic* / 0572711

5 DOG CLASS (YTM)

HUSKY A 178
SALUKI A 182
SETTER A 189
SPANIEL A 201
SHEEPDOG A 250

Displacement, tons: 248 full load
Dimensions, feet (metres): 94 × 24.5 × 12 *(28.7 × 7.5 × 3.7)*
Main machinery: 2 Lister-Blackstone ERS8 MCR diesels; 1,320 hp *(985 kW)*; 2 shafts
Speed, knots: 10. **Range, miles:** 2,236 at 10 kt
Complement: 7

Comment: Harbour berthing tugs. Nominal bollard pull, 17.5 tons. Completed 1962-72. GS vessels serving at Portsmouth, Devonport and on the Clyde. Appearance varies considerably, some with mast, some with curved upper-bridge work, some with flat monkey-island.
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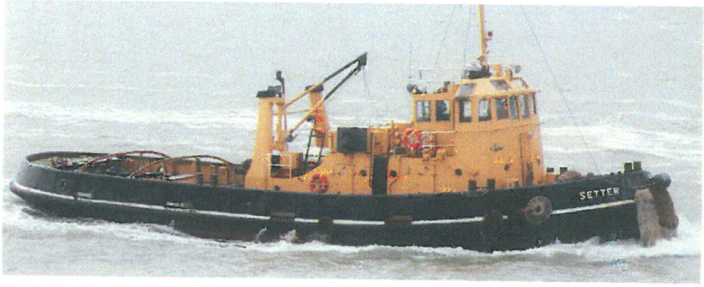
SETTER *10/2003*, Maritime Photographic* / 0572712

3 TRITON CLASS (YTL)

KITTY A 170 **LESLEY** A 172 **MYRTLE** A 199

Displacement, tons: 107.5 standard
Dimensions, feet (metres): 57.7 × 18 × 7.9 *(17.6 × 5.5 × 2.4)*
Main machinery: 1 diesel; 330 hp *(264 kW)*; 1 shaft
Speed, knots: 7.5
Complement: 4

Comment: All completed by August 1974 by Dunstons. 'Water-tractors' with small wheelhouse and adjoining funnel. Later vessels have masts stepped abaft wheelhouse. Voith-Schneider vertical axis propellers. Nominal bollard pull, 3 tons. All are GS vessels divided between Devonport and Portsmouth.

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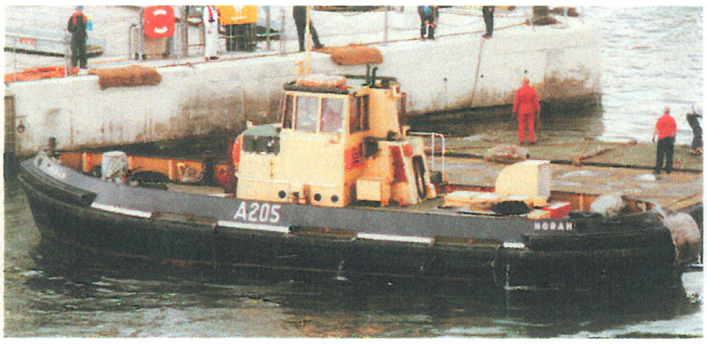

TRITON CLASS *6/2001, A Sharma* / 0131181

4 FELICITY CLASS (YTL)

FRANCES A 147 **FLORENCE** A 149 **GENEVIEVE** A 150 **HELEN** A 198

Displacement, tons: 144 full load
Dimensions, feet (metres): 70 × 21 × 9.8 *(21.5 × 6.4 × 3)*
Main machinery: 1 Mirrlees-Blackstone ESM8 diesel; 615 hp *(459 kW)*; 1 Voith-Schneider cp prop
Speed, knots: 10
Complement: 4
Radars: Navigation: Raytheon; I-band.

Comment: Four completed 1973 by Hancocks. A 147, 149 and 150 ordered early 1979 from Richard Dunston (Thorne) and completed by end 1980. Nominal bollard pull, 5.7 tons. All are GS vessels divided between Devonport, Portsmouth and the Clyde.

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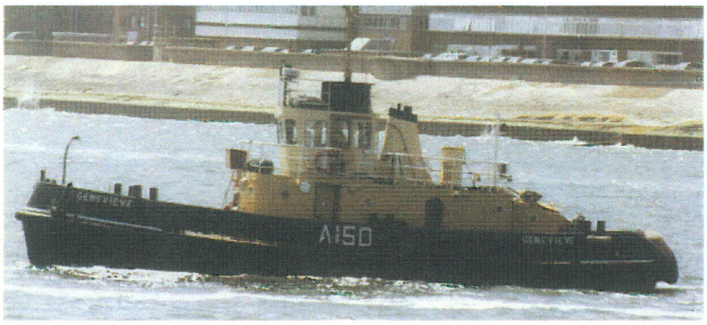

GENEVIEVE *6/2003*, Derek Fox* / 0572659

1 RANGE SUPPORT VESSEL (YFRT)

WARDEN A 368

Displacement, tons: 900 full load
Dimensions, feet (metres): 159.4 × 34.4 × 8.2 *(48.6 × 10.5 × 2.5)*
Main machinery: 2 Ruston 8RKC diesels; 4,000 hp *(2.98 MW)* sustained; 1 shaft; cp prop
Speed, knots: 15
Complement: 11 (4 officers)
Radars: Navigation: Racal Decca RM 1250; I-band.
Sonars: Dowty 2053; high frequency.

Comment: Built by Richards, Lowestoft and completed 20 November 1989. Reverted in 1998 to being an RMAS ship at Kyle of Lochalsh in support of BUTEC.

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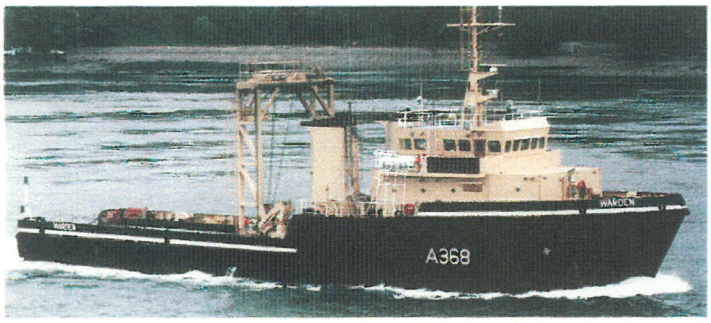

WARDEN *5/1997, B Sullivan* / 0075845

4 RANGE SAFETY CRAFT (YFRT)

RSC 7713 (ex-*Samuel Morley VC*) **RSC 8128** (ex-*Sir Reginald Kerr*)
RSC 8126 (ex-*Sir Cecil Smith*) **SIR WILLIAM ROE** 8127

Displacement, tons: 20.2 full load
Dimensions, feet (metres): 48.2 × 11.5 × 4.3 *(14.7 × 3.5 × 1.3)*
Main machinery: 2 RR C8M 410 or Volvo Penta TAMD-122A diesels; 820 hp *(612 kW)*; 2 shafts
Speed, knots: 22. **Range, miles:** 300 at 20 kt
Complement: 3
Radars: Navigation: Furuno; I-band.

Comment: Range Safety Craft of the 'Honours' and 'Sirs' classes, built by Fairey Marine, A R P Whitstable and Halmatic. All completed 1982-86. Transferred from the RCT on 30 September 1988. *RSC 7713* operates at Kyle of Loch Alsh as RMAS Range trials vessel. *Sir William Roe* is based in Cyprus and has remained with the Royal Logistic Corps. *RSC 8126* and *8128* based at Gibraltar. New engines fitted from 1993. Three similar craft were built in 1991 as pilot cutters. *RSC 7821* transferred to HMS *Bristol*.

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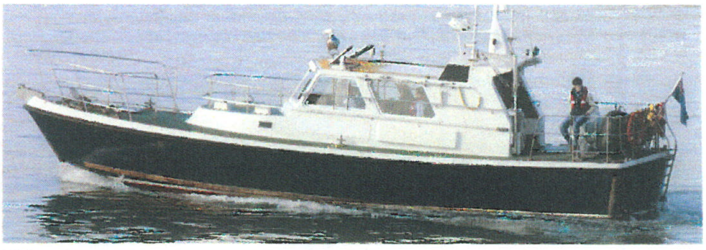

RSC craft *10/2003*, Maritime Photographic* / 0572713

2 SUBMARINE BERTHING TUGS (YTL)

Name	*No*	*Builders*	*Commissioned*
IMPULSE	A 344	Dunston, Hessle	11 Mar 1993
IMPETUS	A 345	Dunston, Hessle	28 May 1993

Displacement, tons: 530 full load
Dimensions, feet (metres): 106.7 × 34.2 × 11.5 *(32.5 × 10.4 × 3.5)*
Main machinery: 2 WH Allen 8S12 diesels; 3,400 hp *(2.54 MW)* sustained; 2 Aquamaster Azimuth thrusters; 1 Jastrom bow thruster
Speed, knots: 12
Complement: 6

Comment: Ordered 28 January 1992 for submarine berthing duties. There are two 10 ton hydraulic winches forward and aft with break capacities of 110 tons. Bollard pull 38.6 tons ahead, 36 tons astern. Fitted with firefighting and oil pollution equipment. Designed for one-man control from the bridge with all round vision and a comprehensive Navaids fit. *Impulse* launched 10 December 1992; *Impetus* 9 February 1993. GS vessels based on the Clyde.

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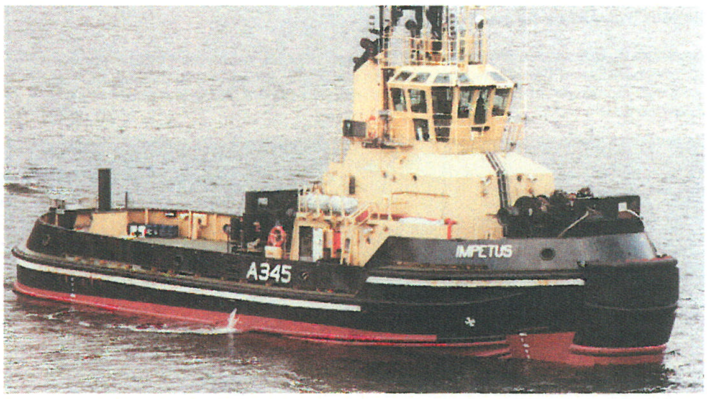

IMPETUS *2/2001, A Sharma* / 0131183

4 TOWED ARRAY TENDERS (YAG)

TARV 8611 **OHMS LAW** 8612 — 8613 **SAPPER** 8614

Dimensions, feet (metres): 65.9 × 19.7 × 7.9 *(20.1 × 6 × 2.4)*
Main machinery: 2 Perkins diesels; 400 hp *(298 kW)*; 2 Kort nozzles
Speed, knots: 12
Complement: 8
Radars: Navigation: Racal Decca; I-band.

Comment: First three built by McTay Marine, Bromborough in 1986. *Sapper* completed in February 1999. Used for transporting clip-on towed arrays from submarine bases, Faslane and Devonport. Also used as divers' support craft. Naval manned.

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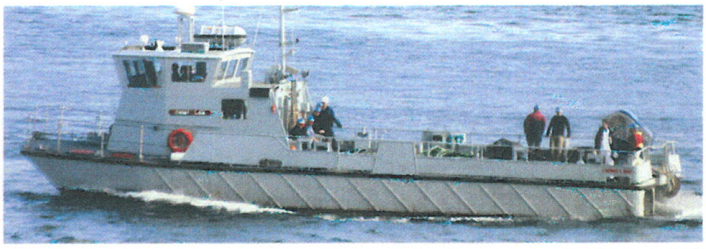

OHMS LAW *6/2003*, B Sullivan* / 0572714

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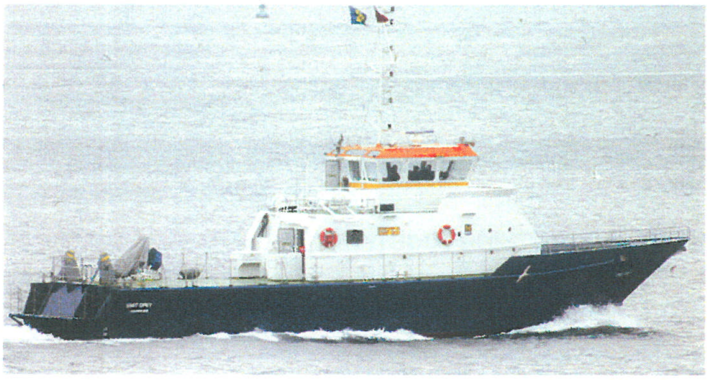
6 AIRCREW TRAINING CRAFT (YXT)

SMIT DEE
SMIT DON
SMIT YARE
SMIT TOWY
SMIT SPEY
SMIT DART

Displacement, tons: 55 full load
Dimensions, feet (metres): 90.5 × 21.6 × 4.9 *(27.6 × 6.6 × 1.5)*
Main machinery: 2 Cummins KTA 19M4 diesels; 1,400 hp *(1.04 MW)*; 2 shafts
1 Ultrajet 305 centreline waterjet; 305 hp *(227 kW)*
Speed, knots: 21. **Range, miles:** 650 at 21 kt
Complement: 6
Radars: Furuno FR-2115 EPA; I-band.

Comment: Vessels built at Babcock Engineering Services, Rosyth, and FBMA Babcock Marine, Cebu, Philippines *(Yare, Towy* and *Spey).* All delivered on 11 July 2003. Of aluminium alloy construction, the design is an adaptation of FBM Babcock Marine's 'Protector' class patrol vessel. The order for the craft followed a contract awarded to MoD and to Smit International for provision of sea survival training and helicopter winching for aircrew, high speed marine target towing and recovery of air-sea rescue apparatus. The craft have an after docking well for a daughter craft or torpedo recovery. Based at Buckie *(Dee)*, Blyth *(Don)*, Great Yarmouth *(Yare)*, Pembroke Dock *(Towy)* and Plymouth *(Spey* and *Dart). Smit Dart* is employed as a passenger craft.
NEW ENTRY



SMIT SPEY *7/2003*, B Sullivan* / 0572696

1 SUBMARINE TENDER (YFB)

Name	*No*	*Builders*	*Commissioned*
ADAMANT	A 232	FBM, Cowes	18 Jan 1993

Displacement, tons: 170 full load
Dimensions, feet (metres): 101 × 25.6 × 3.6 *(30.8 × 7.8 × 1.1)*
Main machinery: 2 Cummins KTA-19M2 diesels; 970 hp *(724 kW)* sustained; 2 water-jets
Speed, knots: 23. **Range, miles:** 250 at 22 kt
Complement: 5 plus 36 passengers plus 1 ton stores

Comment: Twin-hulled support ship ordered in 1991 and launched 8 October 1992. A GS vessel used for personnel and stores transfers in the Firth of Clyde. In addition to the passengers, half a ton of cargo can be carried. Capable of top speed up to Sea State 3 and able to transit safely up to Sea State 6.
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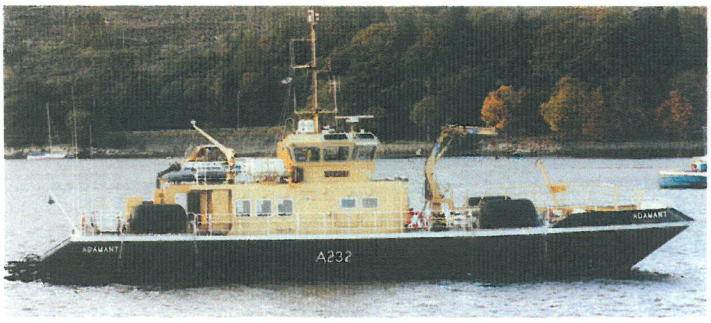

ADAMANT *10/1998, M Verschaeve* / 0053268

2 STORM CLASS (YFB)

Name	*No*	*Builders*	*Commissioned*
CAWSAND	A 192	FBM Marine, Cowes	July 1997
BOVISAND	A 191	FBM Marine, Cowes	Sep 1997

Displacement, tons: 225
Dimensions, feet (metres): 78.4 × 36.4 × 7.5 *(23.9 × 11.1 × 2.3)*
Main machinery: 2 diesels; 1,224 hp(m) *(900 kW)*; 2 shafts
Speed, knots: 14
Complement: 5 plus 75 passengers

Comment: GS vessels for the use of FOST staff at Devonport. Swath design with hydraulically operated telescopic gangways. Have replaced *Fionan of Skellig.*
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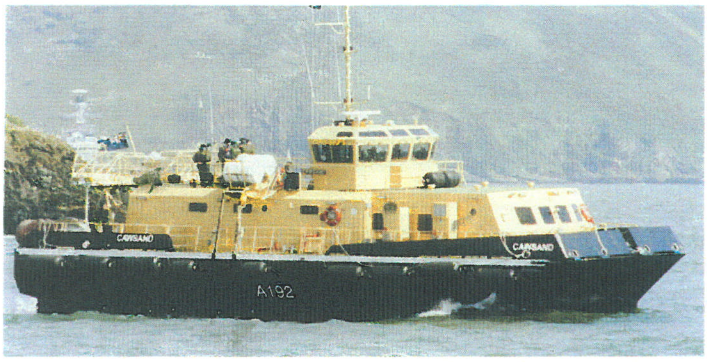

CAWSAND *5/2002, John Brodie* / 0530050

1 INSECT CLASS (YAG)

LADYBIRD A 253

Displacement, tons: 475 full load
Dimensions, feet (metres): 111.8 × 28 × 11 *(34.1 × 8.5 × 3.4)*
Main machinery: 1 Lister-Blackstone ERS8 MCR diesel; 660 hp *(492 kW)*; 1 shaft
Speed, knots: 11.3. **Range, miles:** 3,000 at 10 kt
Complement: 7

Comment: Built as armaments carrier. Commissioned 1973. GS ship used for training aircrew at Devonport. Of 200 ton cargo capacity and 2 ton crane.
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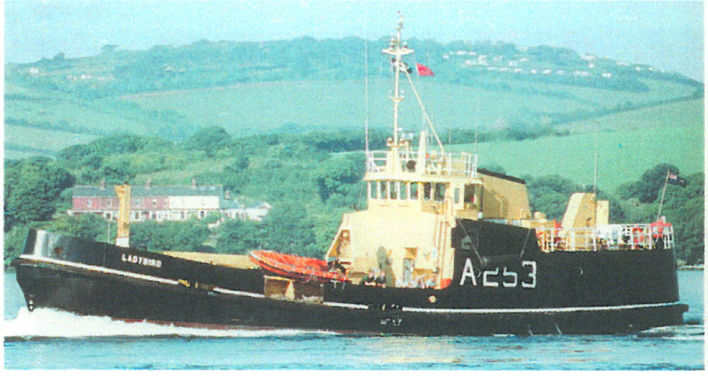

LADYBIRD *6/2001, B Sullivan* / 0131230

3 OBAN CLASS (YFL)

OBAN A 283
ORONSAY A 284
OMAGH A 285

Displacement, tons: 230 full load
Dimensions, feet (metres): 90.9 × 24 × 12.3 *(27.7 × 7.3 × 3.8)*
Main machinery: 2 Cummins N14M diesels; 1,017 hp(m) *(748 kW)*; 2 Kort-Nozzles
Speed, knots: 10
Complement: 7

Comment: Built by McTay Marine and completed January to July 2000. Capable of carrying 60 passengers. Based on the Clyde.
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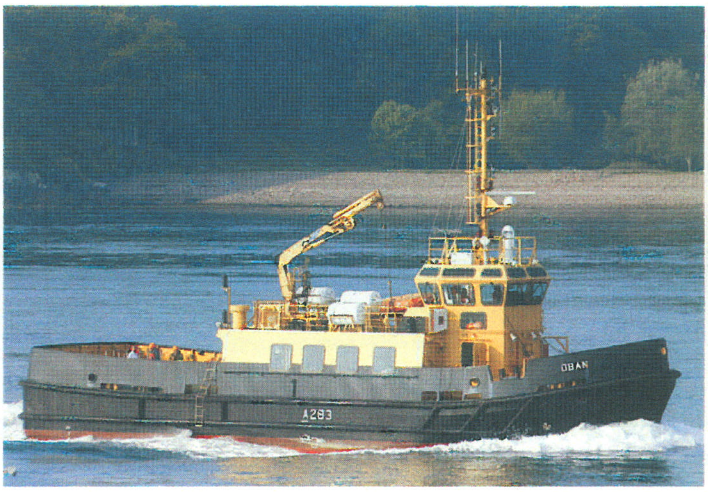

OBAN *5/2003*, B Sullivan* / 0572715

4 PADSTOW AND NEWHAVEN CLASSES (YFL)

PADSTOW A 286
NEWHAVEN A 280
NUTBOURNE A 281
NETLEY A 282

Displacement, tons: 125 full load
Dimensions, feet (metres): 60 × 22.3 × 6.2 *(18.3 × 6.8 × 1.9)*
Main machinery: 2 Cummins 6 CTA diesels; 710 hp(m) *(522 kW)*; 2 shafts
Speed, knots: 10
Complement: 4

Comment: Built by Aluminium Shipbuilders at Fishbourne, Isle of Wight and completed May to November 2000. Capable of carrying 60 passengers and based at Devonport (A 286) and Portsmouth. Catamaran hulls.
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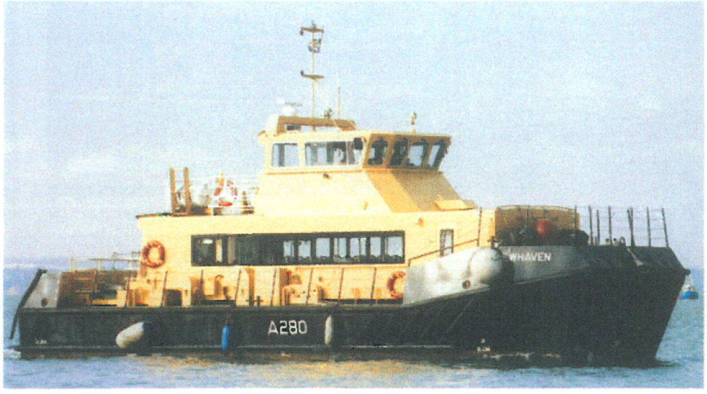

NEWHAVEN *8/2003*, W Sartori* / 0572658

3 MANLY CLASS (YAG)

MELTON A 83 **MENAI** A 84 **MEON** A 87

Displacement, tons: 143 full load
Dimensions, feet (metres): 80 × 21 × 6.6 *(24.4 × 6.4 × 2)*
Main machinery: 1 Lister-Blackstone ESR4 MCR diesel; 320 hp *(239 kW)*; 1 shaft
Speed, knots: 10. **Range, miles:** 600 at 10 kt
Complement: 6 (1 officer)

Comment: All built by Richard Dunston, Hessle. All completed by early 1983. *Melton* is an RMAS vessel at Kyle of Loch Alsh, the other two are GS ships at Devonport.

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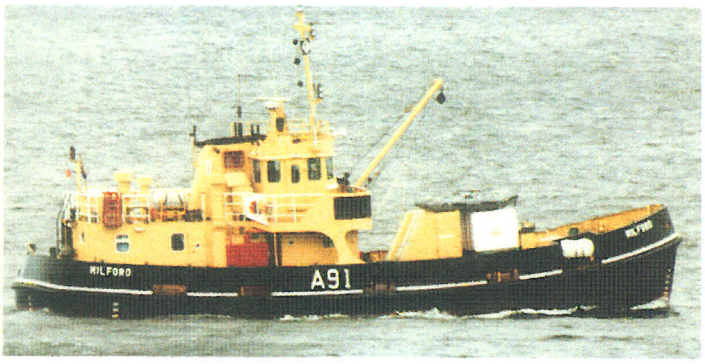


MANLY CLASS *6/1999, A Sharma* / 0075851

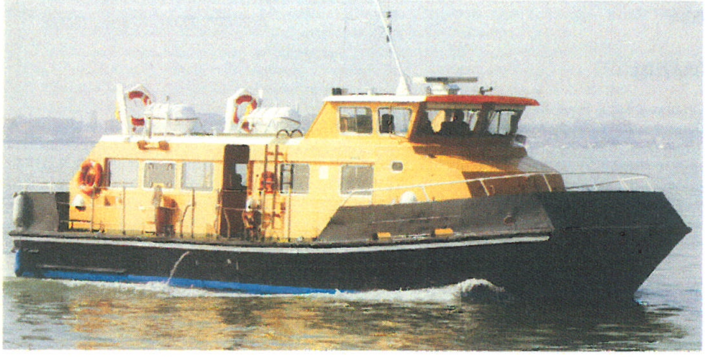
1 FBM CATAMARAN CLASS (YFL)

8837

Displacement, tons: 21 full load
Dimensions, feet (metres): 51.8 × 18 × 4.9 *(15.8 × 5.5 × 1.5)*
Main machinery: 2 Mermaid Turbo 4 diesels; 280 hp *(209 kW)*; 2 shafts
Speed, knots: 13. **Range, miles:** 400 at 10 kt
Complement: 2

Comment: Built by FBM Marine in 1989. Can carry 30 passengers or 2 tons stores. A catamaran type designed to replace some of the older harbour launches but no more have been ordered. GS vessel.

UPDATED



8837 *4/2003*, Maritime Photographic* / 0572716

ARMY (ROYAL LOGISTIC CORPS)

Notes: (1) Five Mk 4 LCVPs are listed in the RN section. One is based in the Falklands and one is in the Gulf.
(2) One Range Safety Craft is listed in RMAS section.
(3) 32 new Combat Support Boats delivered by 2003. These are 8.2 m craft, road transportable and with a top speed of 30 kt.
(4) The RLC is based at Marchwood, Southampton.

4 WORK BOATS (YAG)

BREAM WB 03 **ROACH** WB 05 **PERCH** WB 06 **MILL REEF** WB 08

Displacement, tons: 27 full load
Dimensions, feet (metres): 48.6 × 14.1 × 4.2 *(14.8 × 4.3 × 1.3)*
Main machinery: 2 Gardner diesels; 640 hp *(460 kW)*; 2 shafts
Speed, knots: 10. **Range, miles:** 500 at 10 kt
Complement: 4
Radars: Navigation: Raytheon; I-band.

Comment: First three built 1966-71; fourth one built in 1987 and last pair in late 1990s.

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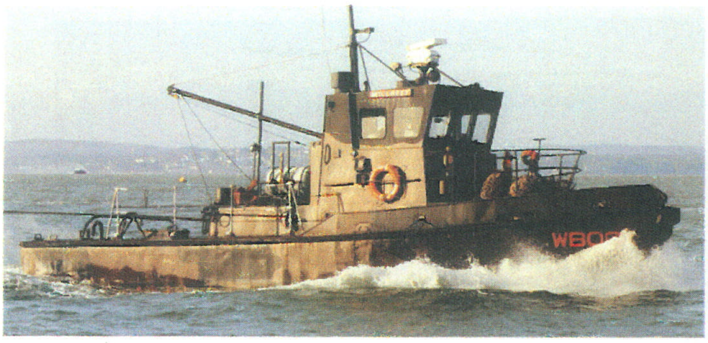

MILL REEF *10/2003*, Maritime Photographic* / 0572717

6 RAMPED CRAFT, LOGISTIC (RCL)

Name	*No*	*Builders*	*Commissioned*
ANDALSNES	L 107	James and Stone, Brightlingsea	22 May 1984
AKYAB	L 109	James and Stone, Brightlingsea	15 Dec 1984
AACHEN	L 110	James and Stone, Brightlingsea	12 Feb 1987
AREZZO	L 111	James and Stone, Brightlingsea	26 Mar 1987
ARROMANCHES (ex-*Agheila*)	L 105 (ex-L 112)	James and Stone, Brightlingsea	12 June 1987
AUDEMER	L 113	James and Stone, Brightlingsea	21 Aug 1987

Displacement, tons: 290 full load
Dimensions, feet (metres): 109.2 × 27.2 × 4.9 *(33.3 × 8.3 × 1.5)*
Main machinery: 2 Dorman 8JTCWM diesels; 504 hp *(376 kW)* sustained; 2 shafts
Speed, knots: 10. **Range, miles:** 900 at 10 kt
Complement: 6 (2 NCOs)
Military lift: 96 tons
Radars: Navigation: Racal Decca; I-band.

Comment: *Andalsnes* and *Akyab* based in Cyprus, remainder at Southampton.

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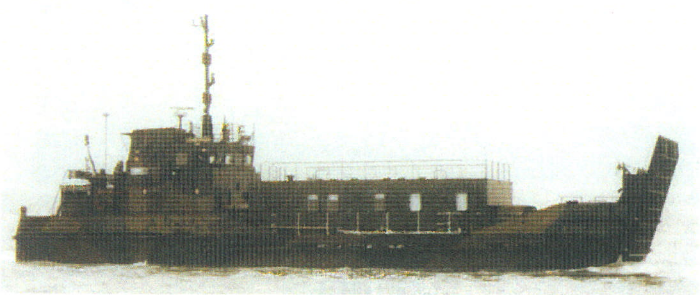
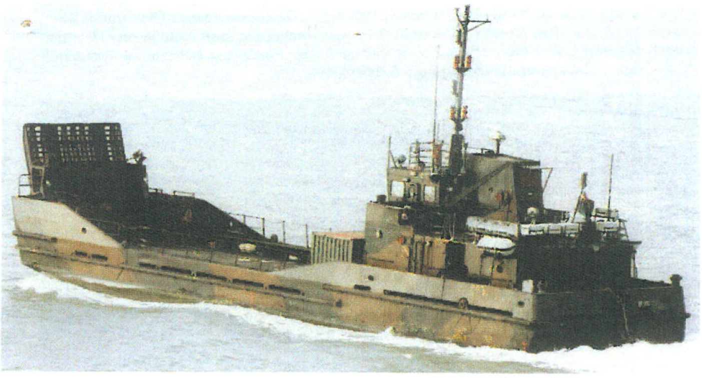


ARROMANCHES *11/2003*, R G Sharpe* / 0572657



AREZZO *9/2003*, Marian Ferrette* / 0572656

SCOTTISH FISHERIES PROTECTION AGENCY

Notes: (1) The Agency has a complement of 275.
(2) There are two Cessna F-406 Caravan II aircraft with Bendix 1500 radars.

3 SULISKER CLASS (PSO)

SULISKER **VIGILANT** **NORNA**

Displacement, tons: 1,566 (1,586 *Norna*) full load
Dimensions, feet (metres): 234.3 × 38 × 17.6 *(71.4 × 11.6 × 5.4)*
Main machinery: 2 Ruston 6AT350 diesels; 6,000 hp *(4.48 MW)* sustained *(Norna)*; 2 Ruston 12 RK 3 diesels; 5,600 hp *(4.18 MW)* sustained; 2 shafts; cp props; bow thruster; 450 hp *(336 kW)*
Speed, knots: 18. **Range, miles:** 7,000 at 13 kt
Complement: 15 (6 officers) plus 6 spare bunks
Radars: Navigation: 2 Racal Decca Bridgemaster; I-band.

Comment: First pair built by Appledore Ferguson, Port Glasgow. *Sulisker* completed 1981, *Vigilant* completed June 1982. *Norna* built by Richards, Lowestoft and completed in June 1988. There are some structural differences in *Norna* including an A frame aft. It is planned to replace *Sulisker* in 2005.

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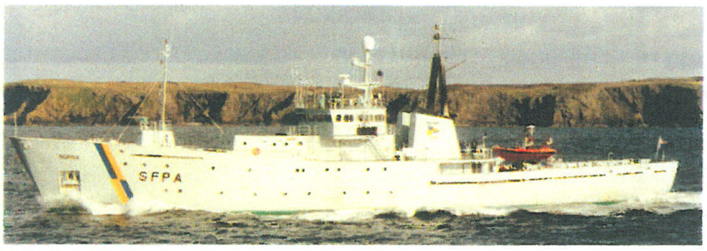
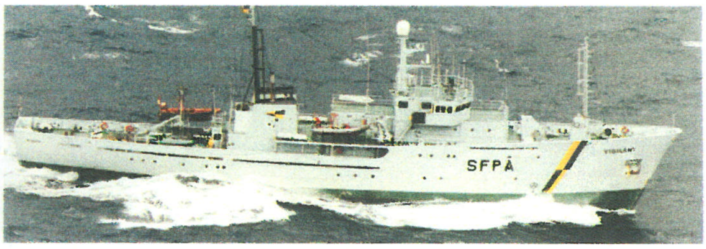


NORNA *6/1998, SFPA* / 0053279



VIGILANT *6/1998, SFPA* / 0053280

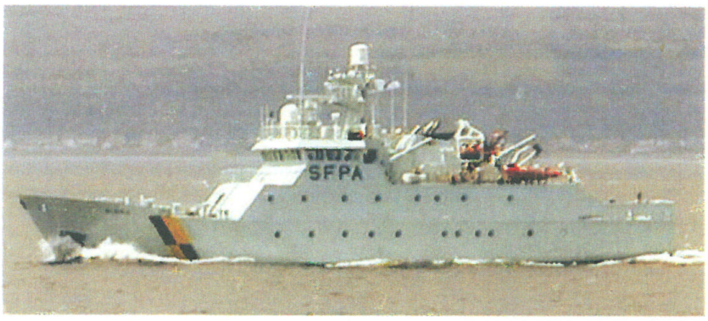
1 MINNA CLASS (PBO)

MINNA

Displacement, tons: 855 full load
Dimensions, feet (metres): 156.5 × 32.8 × 14.8 *(47.7 × 10.0 × 4.5)*
Main machinery: 2 Wärtsilä Gensets; 2,896 hp *(2.16 MW)*; 2 Indar propulsion motors; 2,145 hp *(1.6 MW)*; 2 shafts; 1 Kamewa transverse thruster *(150 kW)*
Speed, knots: 14
Complement: 15 (6 officers)

Comment: Built by Ferguson Shipbuilders, Port Glasgow. Launched in February 2003 and accepted by SFPA on 31 July 2003 as replacement for *Westra.*

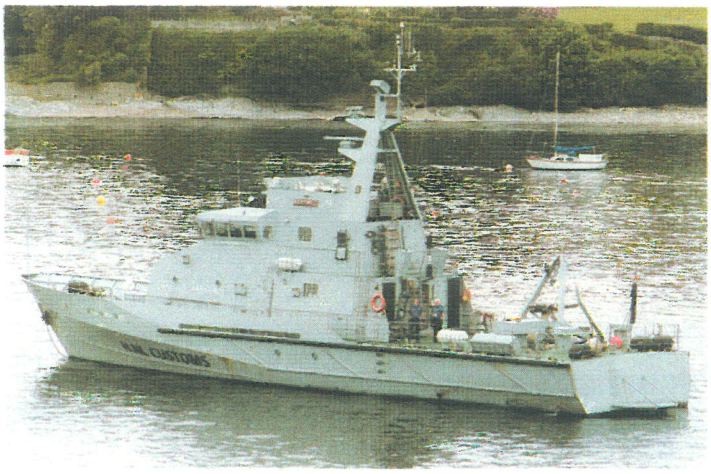
NEW ENTRY



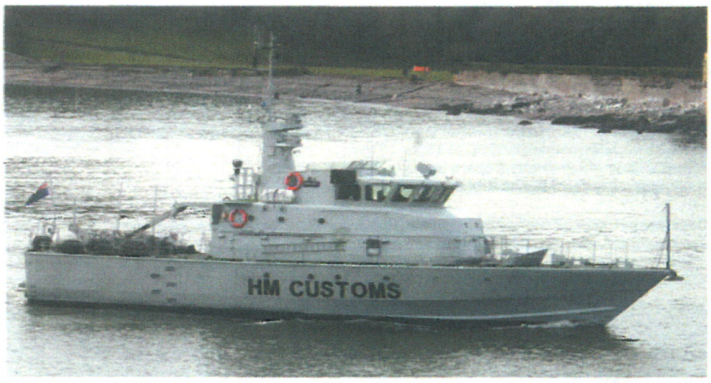
MINNA *6/2003*, SFPA* / 0561556

CUSTOMS

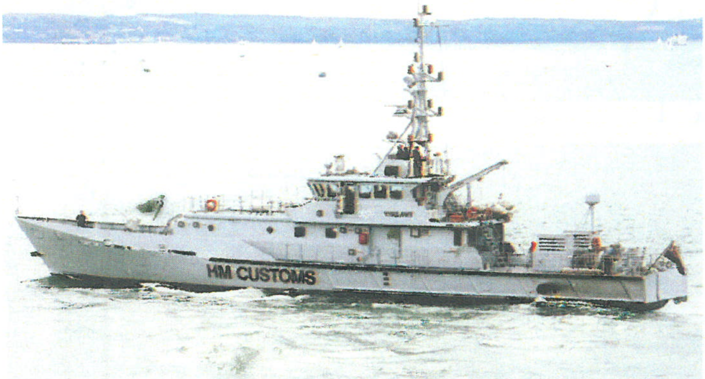
Notes: HM Customs and Excise Maritime Branch operates a number of patrol vessels. These include four Damen 42 m craft *(Seeker, Searcher, Vigilant, Valiant)*, one Vosper Thornycroft 36 m craft *(Sentinel)* and one FBM Marine 26 m craft *(Vincent)*. Remaining craft include one Halmatic 16 m launch *(Panther)*, two Halmatic 12 m launches *(Lynx, Hunter)*, a number of Cheverton launches and rigid inflatable craft ranging from 5.4 to 8.5 m.



SENTINEL *5/2001, A Sharma* / 0131218



VINCENT *10/2002, H M Steele* / 0530078



VIGILANT *8/2003*, Marian Ferrette* / 0561512

TRINITY HOUSE

Notes: The Corporation of Trinity House is the General Lighthouse Authority for England, Wales, The Channel Islands and Gibraltar. The Deep Sea Pilotage Authority for UK, it is a self-endowed charity which supports the education, welfare and training of mariners. The Trinity House Lighthouse Service (THLS) provides nearly 600 aids to navigation (AtoN) including lighthouses, buoys, beacons and a differential global positioning service. THLS is funded by dues levied on commercial shipping calling at UK ports. Currently administered from London, the majority of its operations are to be centralised at Harwich while a depot at Swansea is to serve the west coast. THLS operates a fleet of two Lighthouse tenders and three launches to service its offshore AtoN. In September 2003, plans to replace existing vessels with a Multifunction Tender and a Rapid Response Vessel (to be based in the Strait of Dover) were announced.

PATRICIA

Displacement, tons: 3,139 full load
Dimensions, feet (metres): 284.0 × 46.0 × 14.0 *(86.3 × 13.8 × 4.3)*
Main machinery: 4 Ruston Oil diesels; 4,285 bhp (*3.2 MW*); connected via 4 generators to 2 motors; 3,452 hp *(2.54 MW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 10,000 at 12 kt
Complement: 25 (8 officers)

Comment: Built by Henry Robb Ltd, Leith. Commissioned in May 1982.

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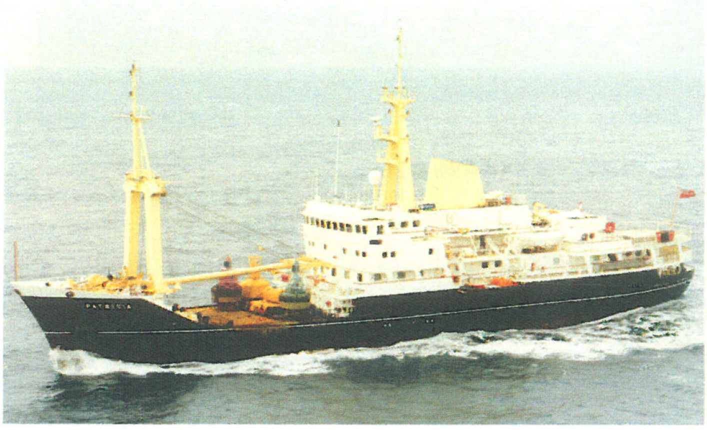

PATRICIA *6/2003*, Trinity House* / 0567568

MERMAID

Displacement, tons: 3,031 full load
Dimensions, feet (metres): 264.0 × 48.0 × 13.0 *(80.3 × 14.5 × 4.0)*
Main machinery: 4 Ruston Oil diesels; 5,329 bhp (*3.9 MW*); connected via 4 generators to 2 motors; 2,338 hp *(1.72 MW)*; 2 shafts
Speed, knots: 13. **Range, miles:** 10,000 at 12 kt
Complement: 25 (8 officers)

Comment: Built by Hyundai Heavy Industries, South Korea. Commissioned in March 1987.

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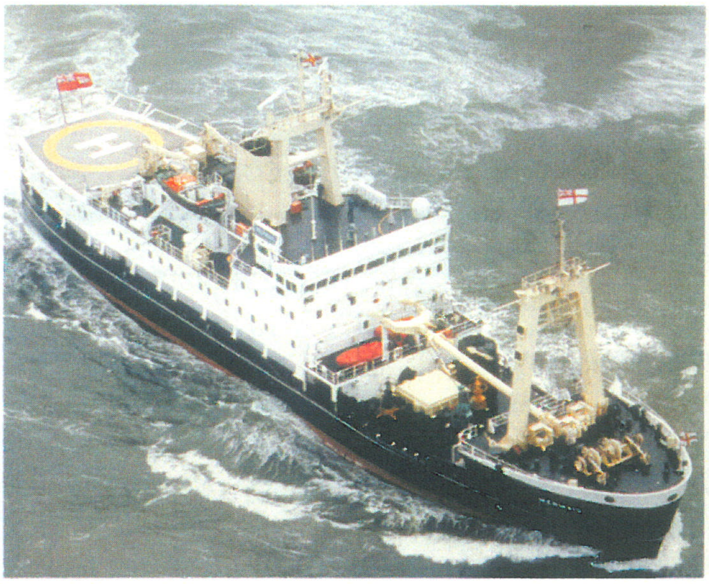
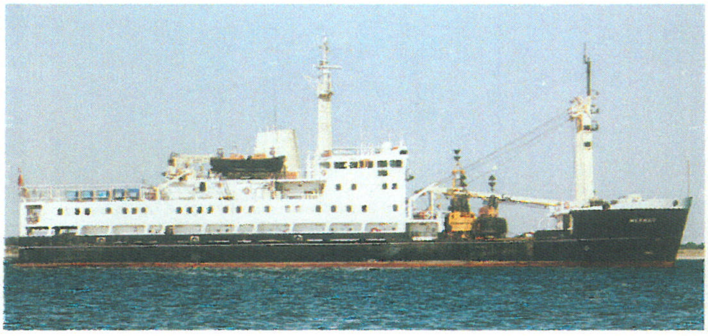


MERMAID *6/2002, Trinity House* / 0543403



MERMAID *7/1999, Maritime Photographic* / 0084427

VECTIS

Displacement, tons: 76 full load
Dimensions, feet (metres): 65.0 × 18.0 × 6.0 *(19.8 × 5.4 × 1.8)*
Main machinery: 2 Volvo TMD 102 diesels
Speed, knots: 10. **Range, miles:** 1,600 at 10 kt
Complement: 4 (2 officers)

Comment: Built by David Abels, Bristol. Commissioned in 1992.

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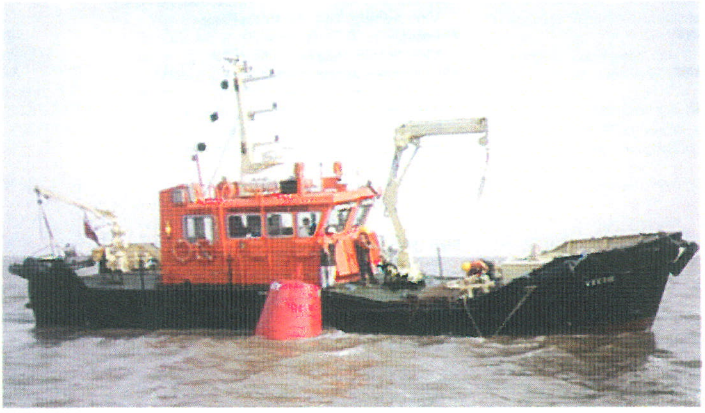


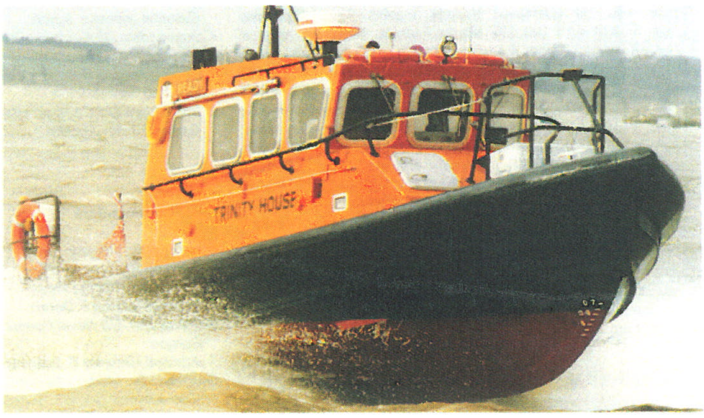
VECTIS *6/2002, Trinity House* / 0543402

READY

Displacement, tons: 9.6 full load
Dimensions, feet (metres): 38.0 × 10.0 × 4.0 *(11.5 × 3.1 × 1.3)*
Main machinery: 2 Cummins 6CTA diesels.
Speed, knots: 32. **Range, miles:** 1,600 at 10 kt
Complement: 2 (1 officer)

Comment: Built by Halmatic Ltd. Commissioned in 1995.

UPDATED



READY *6/2003*, Trinity House* / 0567567

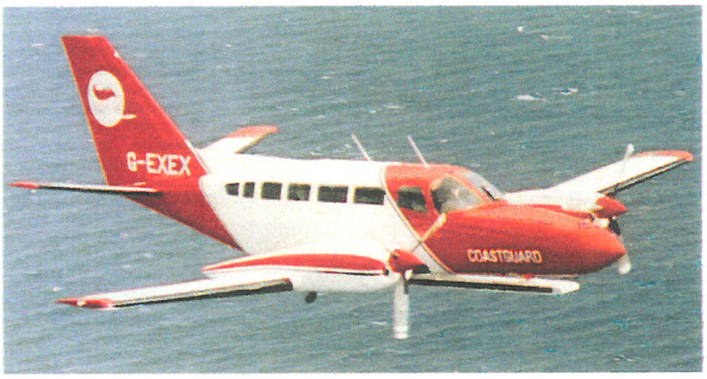
MARITIME & COAST GUARD AGENCY

Notes: The Maritime & Coastguard Agency is responsible for the development, promotion and enforcement of high standards of marine safety, response to maritime emergencies 24 hours a day, reduction of the risk of pollution of the marine environment from ships and, where pollution occurs, minimisation of its impact on the United Kingdom.

Response to maritime emergencies within the UK SAR region is undertaken by HM Coastguard and the MCA's Counter-pollution and Salvage Branch. SAR is co-ordinated through a network of 6 Maritime Rescue Co-ordination Centres (MRCCs), 12 Maritime Rescue Sub Centres and Sector Bases. Each MRCC provides continuous emergency telephone, radio and satellite communications distress watch plus safety information and radio medical advice services. The anti-pollution branch provides response to marine pollution and provides scientific and technical advice on shoreline clean up. Regional Operations Managers (Counter Pollution and Salvage) (ROM-CPS) are appointed to take responsibility for pollution incidents in their regions.

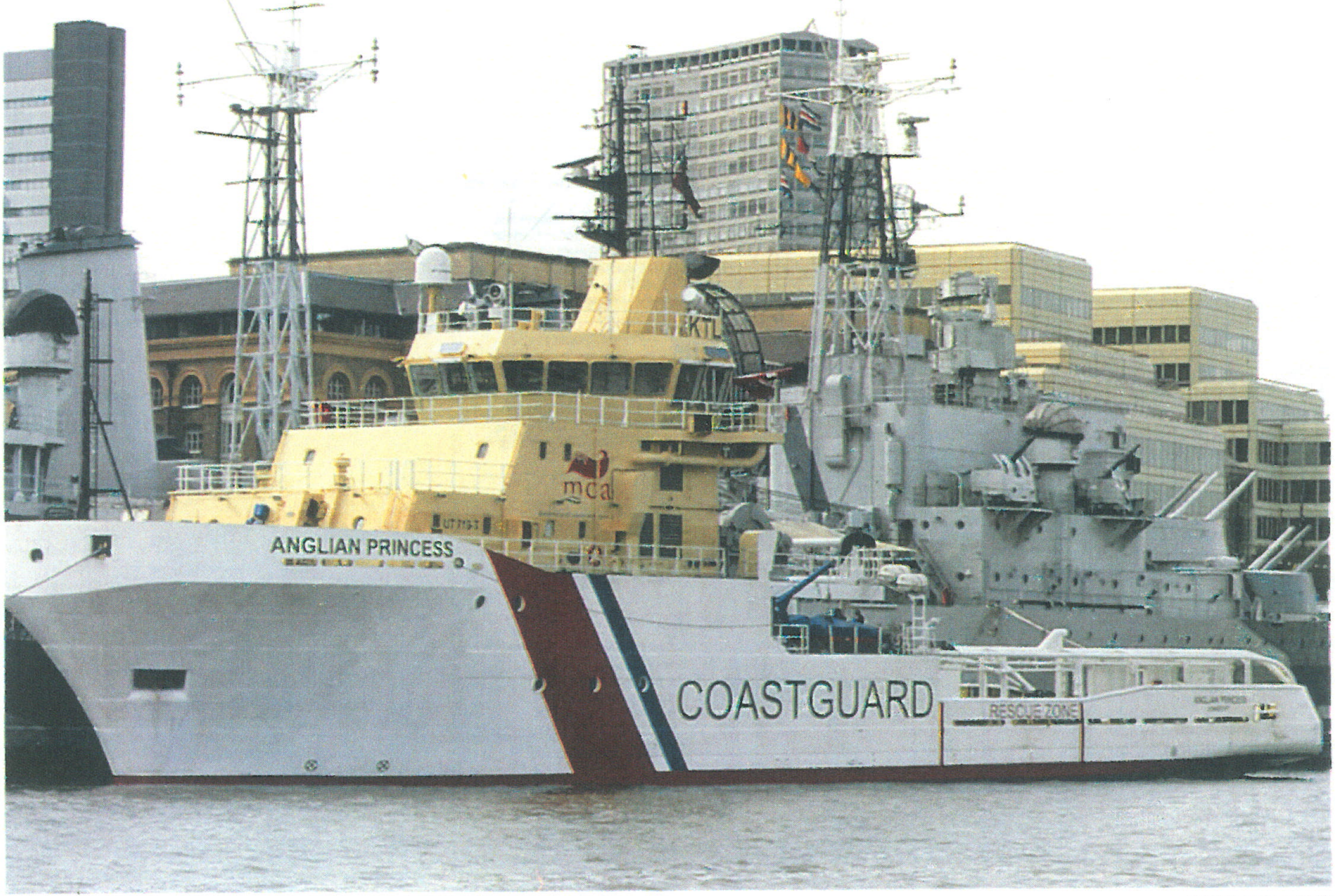
The MCA provides four civilian SAR helicopters (S61N) under contract from Bristow Helicopters. They are based at Sumburgh, Stornoway, Lee-on-Solent and Portland. Fixed-wing aircraft include a BN Islander which conducts surveillance patrols over the Dover Strait and forms part of the Channel Navigation Information Service while, for counter-pollution, a Cessna 404 and Cessna are operated by Air Atlantique of Coventry. Fitted with radar, IR and UV detection equipment, they can also be fitted with dispersant pods. Four emergency towing vessels for SAR, counter-pollution and salvage are under contract from Klyne Tugs Ltd: *Anglian Prince* (1,598 tons gwt), *Anglian Princess* and *Anglian Sovereign* (2,270 tons gwt) and *Anglian Monarch* (1,480 tons gwt).

HM Coastguard has its own corps of 3,100 volunteer Auxiliary Coastguards divided into 401 Coastguard Rescue Teams around the coast of UK. HM Coastguard also make significant use of Royal National Lifeboat Institution all-weather and inshore lifeboats and military SAR helicopters.



CESSNA 404 *6/2002, MCA* / 0529957

The MCA is also responsible for inspections and surveys of UK vessels, port state control inspections of non UK ships, the enforcement of merchant shipping legislation and the setting of ship and seafarer standards.



ANGLIAN PRINCESS *6/2002, MCA* / 0529956

United States

Country Overview

The United States of America is a federal republic which comprises 48 contiguous states (bounded to the north by Canada and to the south by Mexico) and the states of Alaska and Hawaii. External territories include Puerto Rico, American Samoa, Guam and the US Virgin Islands. With an area of 3,717,800 square miles, it occupies much of North America and has a coastline of 10,762 n miles with the Atlantic and Pacific Oceans and with the Gulf of Mexico. Washington, DC is the capital while New York, New York, is the largest city and a leading seaport. Other principal ports include New Orleans, Louisiana; Houston, Texas; Valdez, Alaska; Baton Rouge, Louisiana; Corpus Christi, Texas; Long Beach, California; Norfolk, Virginia; Tampa, Florida; Los Angeles, California; St Louis, Missouri; and Duluth, Wisconsin. There is an extensive inland waterway network, the three main components of which are the Mississippi river system (13,000 n miles long), the Great Lakes (ocean-going vessels can sail between the Great Lakes and the Atlantic Ocean via the St Lawrence Seaway (opened 1959)) and coastal waterways. Territorial seas (12 n miles) are claimed. A 200 n mile EEZ has been claimed but the limits have only been partly defined by boundary agreements.

Headquarters Appointments

Chief of Naval Operations:
Admiral Vernon E Clark
Vice Chief of Naval Operations:
Admiral Michael G Mullen
Director, Naval Nuclear Propulsion:
Admiral Frank L Bowman
Chief of Naval Personnel:
Vice Admiral Gerald L Hoewing
Commander, Sea Systems Command:
Vice Admiral Phillip M Balisle
Commander, Naval Air Systems Command:
Rear Admiral Charles H Johnston
Commander, Space and Naval Warfare Systems Command:
Rear Admiral Kenneth D Slaght

Unified Combatant Commanders

Commander, US Strategic Command:
Admiral James O Ellis
Commander, US Pacific Command:
Admiral Thomas B Fargo

Unified Combatant Commanders — *continued*

Commander, US Joint Forces Command:
Admiral Edmund P Giambastiani Jr
Commander, US European Command:
General James L Jones
Commander, US Northern Command:
General Ralph Eberhart
Commander, US Southern Command:
General James T Hill
Commander, US Central Command:
General John Abizaid

Fleet Commanders

Commander, Atlantic Fleet:
Admiral William J Fallon
Commander, Pacific Fleet:
Admiral Walter F Doran
Commander, US Naval Forces Europe and Allied Forces Southern Europe:
Admiral Gregory G Johnson
Commander, Military Sealift Command:
Vice Admiral David L Brewer III

Flag Officers (Atlantic Area)

Commander, Second Fleet and Striking Fleet, Atlantic:
Vice Admiral Gary Roughead
Commander, Surface Force, Atlantic Fleet:
Rear Admiral Terrance T Etnyre
Commander, Sixth Fleet and Striking and Support Forces, Southern Europe:
Vice Admiral H G Ulrich III
Commander, Submarine Force, Atlantic Fleet and Submarine Allied Command, Atlantic:
Vice Admiral John J Grossenbacher
Commander, Naval Air Force, Atlantic Fleet:
Rear Admiral James M Zortman
Commander, Fleet Air, Keflavik and Iceland Defense Force:
Rear Admiral John J Waickwicz
Commander, Mine Warfare Command:
Rear Admiral Michael P Nowakowski

Flag Officers (Pacific Area)

Commander, Seventh Fleet:
Vice Admiral Robert F Willard
Commander, Naval Surface Force, Pacific Fleet:
Vice Admiral Timothy W La Fleur
Commander, Third Fleet:
Vice Admiral Michael J McCabe
Commander, Naval Air Force, Pacific Fleet:
Vice Admiral Michael D Malone
Commander, US Naval Forces, Japan:
Rear Admiral Frederick R Ruehe
Commander, Submarine Force, Pacific Fleet:
Rear Admiral Paul F Sullivan
Commander, US Naval Forces, Korea:
Rear Admiral Fred Byus

Flag Officer (Central Area)

Commander, Fifth Fleet:
Vice Admiral David C Nichols, Jr

Marine Corps

Commandant:
General Michael W Hagee
Assistant Commandant:
General William L Nyland
Commander, Fleet Marine Force, Atlantic:
Lieutenant General Martin R Bernt
Commander, Fleet Marine Force, Pacific:
Lieutenant General W C Gregson

Prefix to Ships' Names

USS (United States Ship) Warships
USNS (United States Naval Ship) Military Sealift Command

Personnel

	1 Jan 2002	*1 Jan 2003*	*1 Jan 2004*
Navy			
Officers	53,933	54,579	55,036
Enlisted	322,148	324,756	320,132
Marine Corps			
Officers	18,047	18,284	18,431
Enlisted	154,642	155,658	156,473

Strength of the Fleet (1 January 2004)

Type	*Active (NRF) (Reserve)*	*Building (Projected) + Conversion/SLEP*
SHIPS OF THE FLEET		
Strategic Missile Submarines		
SSBN (Ballistic Missile Submarines) (nuclear-powered)	14	–
Cruise Missile Submarines (SSGN) (nuclear-powered)	–	4
Attack Submarines		
SSN Submarines (nuclear-powered)	54	5 (5)
Aircraft Carriers		
CVN Multipurpose Aircraft Carriers (nuclear-powered)	10	1 (1)
CV Multipurpose Aircraft Carriers (conventionally powered)	2	–
Cruisers		
CG Guided Missile Cruisers	27	–
Destroyers		
DDG Guided Missile Destroyers	41	21
DD Destroyers	7	–
Frigates		
FFG Guided Missile Frigates	30	(2)
Patrol Forces		
PC Coastal Defense Ships	13	–
Command Ships		
LCC Command Ships	2	–
AGF Command Ships	2	–
Amphibious Warfare Forces		
LHA Amphibious Assault Ships (general purpose)	5	–
LHD Amphibious Assault Ships (multipurpose)	7	1
LPD Amphibious Transport Docks	11	4 (8)
LSD Dock Landing Ships	12	–
Mine Warfare Forces		
MCM Mine Countermeasures Ships	14	–
MHC Minehunters (Coastal)	12	–
Auxiliaries		
AGSS Auxiliary Research Submarine	1	–
AOE Fast Combat Support Ships	4	–
ARS Salvage Ships	4	–
AS Submarine Tenders	2	–
MILITARY SEALIFT COMMAND INVENTORY		
Naval Fleet Auxiliary Force		
T-AOE Fast Combat Support	4	–
T-AKE Auxiliary Cargo and Ammunition	–	6 (6)
T-AE Ammunition	6	–
T-AFS Combat Stores	6	–
T-AH Hospital	2	–
T-AO Oilers	14	–
T-ATF Fleet Ocean Tugs	5	–
Special Mission Ships		
T-AG/T-AGM Miscellaneous	3	–
T-AGOS Surveillance/Patrol	5	–
T-AGS Surveying	7	–
T-ARC Cable Repair	1	–
Strategic Sealift Force		
T-AKR Fast Sealift	19	–
T-AOT Tankers	5	–
Prepositioning Programme		
HSV Theatre Support	2	–
T-AK Container Ro-Ro	3	–
T-AK Container	6	–
T-AK Vehicle Cargo	13	–
T-AKR Large, Medium-Speed, Ro-Ro	8	1
T-AVB Aviation Logistic	2	–
Ready Reserve Force		
T-ACS Auxiliary Crane	10	–
T-AK Break Bulk	7	–
T-AKR Ro-ro	31	–
T-AOT/T-AOG Product Tankers	9	–
T-AK/T-AP Miscellaneous	9	–

Special Notes

To provide similar information to that included in other major navies' Deployment Tables the fleet assignment (abbreviated 'F/S') status of each ship in the US Navy has been included. The assignment appears in a column immediately to the right of the commissioning date. In the case of the Floating Dry Dock section this system is not used. The following abbreviations are used to indicate fleet assignments:

AA	active Atlantic Fleet
Active	active under charter with MSC
AR	in reserve Out of Commission, Atlantic Fleet
ASA	active In Service, Atlantic Fleet
ASR	in reserve Out of Service, Atlantic Fleet
Bldg	Building
CONV	ship undergoing conversion
LOAN	ship or craft loaned to another government, or non-government agency, but US Navy retains title and the ship or craft is on the NVR
MAR	in reserve Out of Commission, Atlantic Fleet and laid up in the temporary custody of the Maritime Administration
MPR	same as 'MAR', but applies to the Pacific Fleet
NRF	assigned to the Naval Reserve Force (ships so assigned are listed in a special table for major warships and amphibious ships)
Ord	the contract for the construction of the ship has been let, but actual construction has not yet begun
PA	active Pacific Fleet
PR	in reserve Out of Commission, Pacific Fleet
Proj	the ship is scheduled for construction at some time in the immediate future
PSA	active In Service, Pacific Fleet
PSR	in reserve Out of Service, Pacific Fleet
ROS	reduced Operating Status
TAA	active Military Sealift Command, Atlantic Fleet
TAR	in Ready Reserve, Military Sealift Command, Atlantic Fleet
TPA	active Military Sealift Command, Pacific Fleet
TPR	in Ready Reserve, Military Sealift Command, Pacific Fleet
TWWR	active Military Sealift Command, Worldwide Routes

Ship Status Definitions

In Commission: as a rule any ship, except a Service Craft, that is active, is in commission. The ship has a Commanding Officer and flies a commissioning pennant. 'Commissioning date' as used in this section means the date of being 'in commission' rather than 'completion' or 'acceptance into service' as used in some other navies.

In Service: all service craft (dry docks and with classifications that start with 'Y'), with the exception of *Constitution*, that are active, are 'in service'. The ship has an Officer-in-Charge and does not fly a commissioning pennant.

Ships 'in reserve, out of commission' or 'in reserve, out of service' are put in a state of preservation for future service. Depending on the size of the ship or craft, a ship in 'mothballs' usually takes from 30 days to nearly a year to restore to full operational service. The above status definitions do not apply to the Military Sealift Command.

Approved Fiscal Year 2004 Programme

	Appropriations (US dollars millions)
CVN 21 (R & D, advance procurement)	1,516
SSGN conversion (R & D, advance procurement)	1,236
'Virginia' class (SSN 779)	2,452
DD(X) Destroyer	1,052
3 'Arleigh Burke' class (DDG 107-109)	3,298
1 'San Antonio' class (LPD 18)	1,317
1 'Lewis and Clark' class (T-AKE-3)	1,066
Littoral Combat Ship	166

Proposed Fiscal Year 2005 Programme

	Appropriations (US dollars millions)
CVN 21 (R & D, advance procurement)	976
SSGN conversion (R & D, advance procurement)	537
'Virginia' class (SSN 779)	2,596
DD(X) Destroyer	1,432
3 'Arleigh Burke' (DDG 110-112)	3,445
1 'San Antonio' class (LPD 18)	967
Littoral Combat Ship	352

Naval Aviation

Naval Aviation had an active inventory of 4,079 aircraft as of 1 January 2004, with approximately 31 per cent of those being operated by the US Marine Corps. The principal aviation organisations are 10 active carrier air wings and one reserve, 12 active maritime patrol squadrons and seven reserve, and three Marine aircraft wings and one reserve.

Fighter Attack: 24 (7) Naval and 14 (4) Marine squadrons with F/A-18 Hornets. 7 Navy squadrons for F/A-18 Super Hornets and 8 Navy squadrons with F-14 Tomcats.
Attack: Seven Marine squadrons with AV-8B Harriers.
Airborne Early Warning: 11 (2) Navy squadrons with E-2C Hawkeyes.
Electronic Warfare: 14 (2) Navy and four Marine squadrons with EA-6B Prowlers.
Communication Relay: Three Navy squadrons of EA-6B Mercurys.
Anti-Submarine Warfare: 10 (1) Navy squadrons with S-3B Vikings.
Maritime Patrol: 15 (7) Navy squadrons with P-3C Orions.
Electronic Reconnaissance: Two Navy squadrons with EP-3E Orions (Aries II).
Helicopter Anti-Submarine: 23 (4) Navy squadrons with SH/HH-60 Seahawks.
Helicopter Mine Countermeasures: (2) Navy squadrons with MH-53E Sea Dragons. 1 (1) squadron of SH-3 Sea Kings and 2 squadrons of SH-26 Seasprite.
Helicopter Combat Support: Two Navy squadrons of HH-46D Sea Knights, four Navy squadrons of MH-60S Knighthawks, two Navy squadrons of MH-53E Sea Dragons and two (1) Navy squadrons of SH-3 Sea Kings.
Helicopter Gunship: Eight Marine squadrons with AH-1W Super Cobras.
Helicopter Transport: 15 (2) Marine squadrons of CH-46E Sea Knights, three with CH-53D Sea Stallions and six (two) of CH-53E Super Stallions.
Special or Composite: One Navy composite squadron of SH-3 Sea Kings, one Navy composite squadron of SH-26 Seasprite, two Navy special squadrons of SH-26 Seasprites.

Aircraft Procurement Plan FY2004-2006

	04	*05*	*06*
F/A-18E/F Super Hornet	42	42	38
MV-22 Osprey	9	8	15
T-45TS Goshawk	14	8	5
E-2C Hawkeye	2	2	2
EA-18G	—	—	4
MH-60S	13	15	26
AH-1Z/UH-1Y	9	9	12
MH-60R	6	8	15
KC-130J	—	4	4
UC-35	4	—	—
C-40A	1	1	3
T-39	2	—	—
C-37	1	1	—

Naval Special Warfare

The Naval Special Warfare Command was commissioned 16 April 1987.

SEAL (Sea Air Land) teams are manned at a nominal 6 platoons per team, with 24 platoons on each coast based at Coronado, California (Group 1) and Little Creek, Virginia (Group 2). Platoons are allocated to theatre commanders during operational deployments. Total numbers 5,000 of whom 2,500 are SEALs and Special Warfare Combatant-craft Crewmen (SWCC) operators.

Bases

Naval Air Stations and Air Facilities

Naval Air Weapons Station (NAWS) China Lake, CA; Naval Air Facility (NAF) Centro, CA; Naval Air Station (NAS) Lemoore, CA; NAF Washington, DC; NAS Jacksonville, FL; NAF Key West, FL; NAS Whiting Field (Milton), FL; NAS Pensacola, FL; NAS Atlanta (Marietta), GA; PMRF Barking Sands, HI; NAS Joint Reserve Base, New Orleans, LA; NAS Brunswick, ME; NAS Patuxent River, MD; NAS Meridian, MS; NAS Fallon, NV; Naval Air Engineering Center (NAEC) Lakehurst, NJ; NAS Joint Reserve Base, Willow Grove, PA; NAS, Corpus Christi, TX; NAS Joint Reserve Base Fort Worth, TX; NAS Kingsville, TX; NAS Oceana, VA; NAS Whidbey Island (Oak Harbor), WA.

NAS Keflavik, Iceland; NAS Sigonella, Italy; NAF Atsugi, Japan; NAF Misawa, Japan; NAF Okinawa, Japan; NAF Mildenhall, UK.

Naval Stations and Naval Bases

Naval Base (NB) San Diego, CA; NB Coronado, CA; NB Ventura County, CA; NB Point Loma (San Diego), CA; NS Mayport, FL; Naval Station (NS) Pearl Harbor, HI; NS Great Lakes, ILL; NS Annapolis, MD; NS Pascagoula, MS; NS Ingleside, TX; NS Roosevelt Roads, OR; NS Newport, RI; Naval Amphibious Base (NAB) (Amphibious) Little Creek, VA; NS Norfolk, VA; NS Bremerton, WA; NS Everett, WA.

NS Guantanamo Bay, Cuba; Fleet Activities (FA) Okinawa, Japan; FA Sasebo, Japan; FA Chinhae, Korea; FA Yokosuka, Japan; NS Rota, Spain.

Naval Support Facilities

NSA Monterey Bay, CA; NSA Washington, DC; NSA New Orleans, LA; NSA Mechanicsburg, PA; NSA Mid-South (Millington), TN; NSA Norfolk, VA.

NSA Diego Garcia, BIOT; Naval Forces Marianes Support Activity, Guam; NSA Souda Bay, Greece; NSA Gaeta, Italy; NSA La Maddalena, Italy; NSA Naples, Italy, Naval Activities (NA) United Kingdom (London), UK; NSA Bahrain.

Strategic Missile Submarine Bases

Bangor, WA (West Coast); Kings Bay, GA (East Coast), New London, CT (East Coast).

Naval Shipyards

Pearl Harbor, HI; Puget Sound, Bremerton, WA; Norfolk, VA; Portsmouth, NH (located in Kittery, ME).

Naval Ship Repair Facilities

Yokosuka, Japan.

Marine Corps Air Stations and Helicopter Facilities

MCAS: Beaufort, SC; Yuma, AZ; Kaneohe Bay, Oahu, HI; Quantico, VA; Cherry Point, NC; Iwakuni, Honshu, Japan; New River (Jacksonville), NC. Futema, Okinawa, Miramar (San Diego), CA.

Marine Corps Bases

Camp Pendleton, CA; Twentynine Palms, CA; Camp H M Smith (Oahu), HI; Camp Lejeune, NC; Camp Smedley D Butler (Kawasaki), Okinawa, Japan.

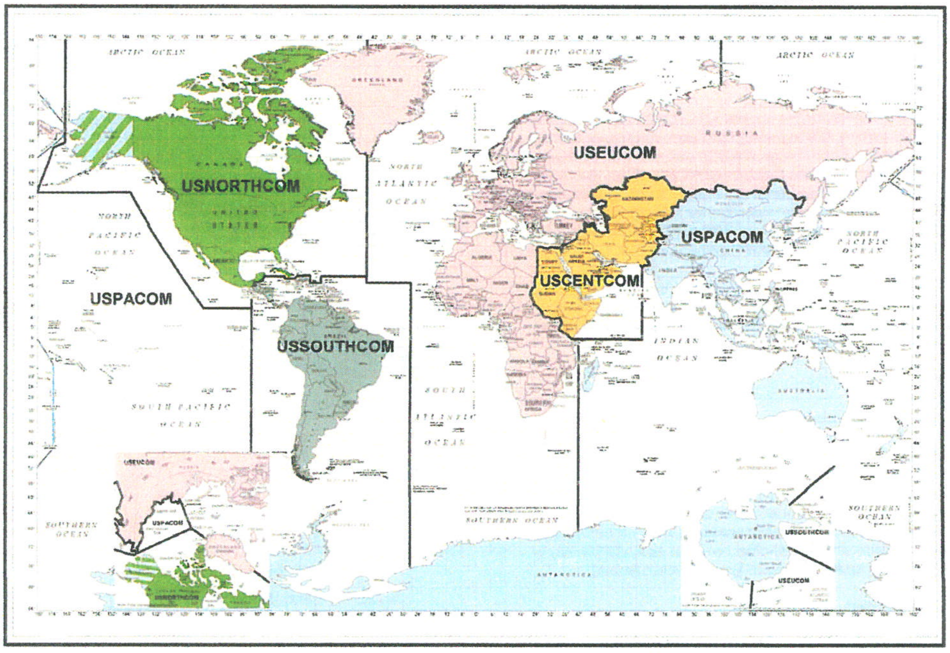
Command and Control of US Naval Forces

Strategic and Operational Command

All US Military Forces operate under Title 10 of US Code and subsidiary Joint Force Doctrine publications. The President of the United States is the Commander-in-Chief of all US forces and exercises authority for the application of military force through the Secretary of Defense who is advised by the Chairman of the Joint Chiefs of Staff. The Unified Combatant Commanders are four-star officers who have broad geographic area of functional responsibilities. Exercising Combatant Command (COCOM), they have authority to employ forces as necessary to accomplish assigned military missions and are as follows:

Commander US European Command (Stuttgart-Vaihingen, Germany)
Commander US Northern Command (Peterson AFB, Colorado)
Commander US Pacific Command (Honolulu, Hawaii)
Commander US Southern Command (Miami, Florida)
Commander US Central Command (MacDill AFB, Florida)
Commander US Joint Forces Command (Norfolk, Virginia)
Commander US Special Operations Command (MacDill AFB, Florida)
Commander US Transportation Command (Scott AFB, Illinois)
Commander US Strategic Command (Offutt AFB, Nebraska)

THE WORLD 1:135,000,000 **THE WORLD WITH COMMANDERS' AREAS OF RESPONSIBILITY** EDITION 5-NIMA SERIES 1107 Based on Unified Command Plan February 2002



AREAS OF RESPONSIBILITY

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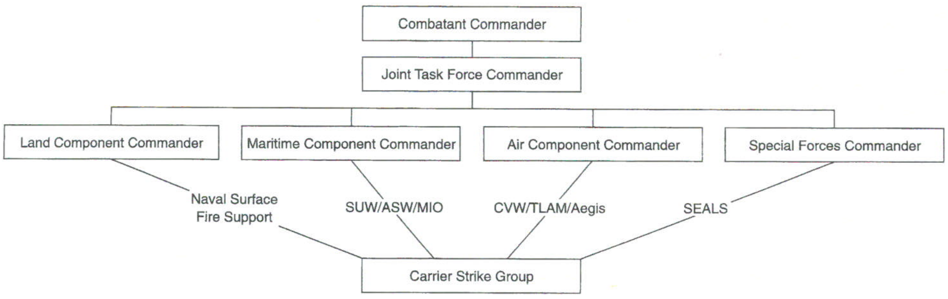


CHAIN OF COMMAND 0531964

The Unified Combatant Commanders may decide to exercise Operational (OPCON) command of naval forces directly. Alternatively, they may delegate such powers to another officer who might be a subordinate Unified Commander (for example Commander, US Forces Korea), a service component commander (Army, Navy, Air Force, Marine Corps and so on), a functional component commander (air, maritime, land, special forces), a joint task force commander or a single service force commander.

Navy force commanders have a dual chain of command. They report to the Chief of Naval Operations for administrative matters such as training and equipping of forces and are also responsible to the combatant commanders for providing forces to accomplish missions. They include the following:

Commander Atlantic Fleet
Commander Pacific Fleet
Commander US Naval Forces Europe
Commander US Naval Forces Central Command
Commander Naval Reserve Forces
Commander Military Sealift Command

Once deployed in theatre, naval forces are operationally assigned to three-star numbered fleet commanders:

Commander Second Fleet (Atlantic)
Commander Third Fleet (Eastern Pacific)
Commander Fifth Fleet (Arabian Gulf and Indian Ocean)
Commander Sixth Fleet (Mediterranean)
Commander Seventh Fleet (Western Pacific)

These arrangements are intended to provide a framework that provides a clear chain of command while retaining the flexibility to be adapted to the operational circumstances. For example, it is feasible for a multi-mission naval task group, such as a carrier strike group (CVSG) (1 CV/CVN, 2 CG, 3 DDG/FFG, 2 SSN and 1 AOE) to support service, component, and other superior commanders simultaneously.

Tactical Command and Composite Warfare Commander

US naval task groups and forces operate under Composite Warfare Commander (CWC) doctrine. The officer in tactical command (OTC) is responsible for accomplishing the missions of his assigned forces. The CWC directs the force and controls warfare functions. The OTC may designate a subordinate commander as CWC but, in general practice, the roles are combined. The OTC/CWC is supported by Principal Warfare Commanders (PWC), Functional Warfare Commanders (FWC) and Coordinators.

PWCs include the Air Defense Commander (ADC), Strike Warfare Commander (STWC), Information Warfare Commander (IWC), Anti-submarine Warfare Commander (ASWC), and Surface Warfare Commander (SUWC). ASW and SUW areas can be combined under a Sea Combat Commander (SCC). PWCs collect and distribute information pertinent to their warfare areas and can be delegated authority to respond to threats with assigned assets.

FWCs perform duties of a scope or duration more limited than that of a PWCs. Typical FWCs include Maritime Interception Operations Commander (MIOC), Mine Warfare Commander (MIWC), Operational Deception Group Commander, Screen Commander (SC) and Underway Replenishment Group (URG) Commander.

Coordinators are responsible to the OTC/CWC for managing assets and resources. Among assigned Coordinators are the Air Resource Element Coordinator (AREC), Air Control Authority (ACA), Cryptologic Resource Coordinator (CRC), Force Over-the-horizon Track Coordinator (FOTC), Force Track Coordinator (FTC), Helicopter Element Coordinator (HEC), Submarine Operations Coordinating Authority (SOCA), TLAM Launch Area Coordinator (LAC) and TLAM Strike Coordinator (TSC).

The OTC/CWC may activate any or all of these warfare commanders and coordinators as necessary. The guiding principle of CWC doctrine is flexibility to meet operational requirements.

Multinational Operations

US naval forces regularly participate in peacetime and wartime multinational operations. Although the President always retains command authority over US forces, he may place them under control of a foreign commander as required to achieve specific military objectives. Multinational operations may be conducted under the structure of a formal alliance (such as NATO) or of an ad hoc coalition (Operation Desert Shield/Desert Storm).

Complex Naval Task Forces

Complex Task Forces usually consist of multiple CVSGs and/or Amphibious Readiness Groups (ARGs) and may also include naval assets of allied nations. Such forces may operate together under three generic command and control structures.

In Situation A, the forces integrate, the senior officer present becomes the overall OTC/CWC and a new single CWC organisation is established.

In Situation B, task groups do not integrate. The senior OTC/CWC coordinates the tactical operations of all naval forces and delegates responsibilities and TACON of specific forces to junior commanders as appropriate. The senior OTC/CWC may also designate junior commanders as sector OTC/CWCs.

In Situation C, each group retains its own OTC/CWC and its own set of warfare commanders and coordinators. The OTC/CWC of the supported force (or a common superior) draws on the assets of the entire force to achieve joint and combined force objectives.

Amphibious Operations

'Commander Amphibious Task Force' (CATF) and 'Commander Landing Force' (CLF) are historic naval command terms whose functional responsibilities are recognised by Joint Doctrine. The common superior establishes command relationships between CATF and CLF who are considered coequal in planning. CATF is responsible for operations at sea while CLF dictates landing force objectives and landing and drop zones.

US Marine Corps Organisation

Marine Corps Structure

Title 10 directs that the Marine Corps is to consist of three divisions and three air wings with their necessary logistics support and that there is to be a similar organisation in the reserves consisting of one division, one air wing, and their respective logistical support groups. MEFs I (Camp Pendleton, CA), II (Camp Lejeune, NC) and III (Okinawa, Japan) are the three standing Marine Expeditionary Forces (MEFs).

The MEF is the USMC's principle war-fighting organisation. Commanded by a lieutenant general, it consists of 50-60,000 personnel and includes, typically, a division, air wing, FSSG and headquarters group. MEFs can conduct a broad scope of missions in any environment for sixty days and are supported by amphibious shipping and/or Maritime Prepositioning Squadrons (MPS). Because of its size, the MEF is normally committed sequentially, building on a smaller operational unit such as a Marine Expeditionary Brigade (MEB) or Marine Expeditionary Unit (MEU).

The MEB is designed as the lead element for a MEF or for small-scale contingencies. Command by a major general or brigadier, it consists of 14-18,000 Marine and Navy personnel and has thirty days sustainability. The ground combat element consists of an infantry regiment reinforced by artillery, some armour, light armoured vehicles, assault amphibian vehicles, and combat engineers. These assets can be divided into four battalion-size manoeuvre elements, supported by three to six fixed- and rotary-wing aircraft squadrons.

MEUs routinely forward deploy on Amphibious Ready Groups (ARGs). Commanded by a colonel, they contain approximately 2,200 Marine and Navy personnel and can sustain operations for fifteen days. MEUs normally consist of a reinforced infantry Battalion Landing Team (BLT), a composite helicopter squadron (with air command and control and six Harriers), and a MEU service support group (MSSG). Typically, such a force can act as the lead element for a larger force and/or provide shaping/engagement activities, deterrence, and limited power projection. It has the capability to conduct company to battalion-sized raids to the range limits of assigned helicopters, roughly 70-100 miles from the ARG. An ARG typically consists of 1 LHD/LHA, 1 LPD and 1 LSD.

Marine Corps Operations

Operations are conducted by Marine Air Ground Task Forces (MAGTFs) whose size and composition will be dictated by operational circumstances. A MAGTF can be established by drawing ground, aviation, and combat service support assets from divisions, air wings, and their support groups. At the lower end of the scale, MEUs are available as immediately responsive, sea-based MAGTFs while, on a much greater scale, a full MEF might be required. This might be based on one of the standing MEFs or, as in Operation Desert Shield/Desert Storm, drawn from all three standing MEFs. A MAGTF always consists of a Command Element (CE), Ground Combat Element (GCE), Aviation Combat Element (ACE) and a Combat Service Support Element (CSSE).

Expeditionary Strike Group (ESG)

These are designed to give the Unified Combatant Commanders greater combat power and flexibility. A pilot deployment was conducted in early 2003. Under the ESG concept, an Amphibious Ready Group (LHA/LHD, LPD and LSD) and embarked MEU will be augmented by a cruiser, a destroyer, a frigate, and an attack submarine, together with a P-3 Orion ASW/Recce aircraft. Ultimately, the Navy plans to maintain 12 ESGs and 12 CVBGs.

Embarked MEU

Marine Corps amphibious forces embarked on ARGs come under the OPCON of the naval or maritime component commander. They remain under the naval or maritime component commander throughout an amphibious operation if they will re-embark. If they transition to sustained operations ashore, they chop to either the Marine component commander or the land component commander. A Marine Corps component commander may be designated as the joint force maritime, land, or air component commander.

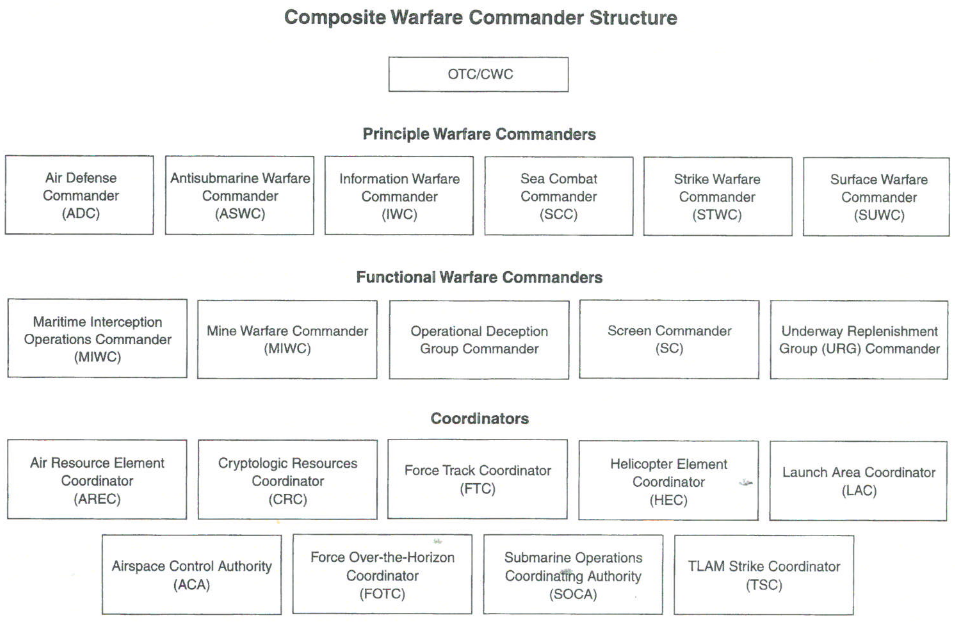
Communications and Data Systems

Advanced Combat Direction System (ACDS)

ACDS is a centralised, automated command and control system. It replaces the Naval Tactical Data System (NTDS) to enable aircraft carriers and amphibious ships to identify and classify targets, prioritise and conduct engagements, vector interceptor aircraft to targets, and exchange targeting information and engagement orders within the battlegroup and among different service components, US and foreign.

ACDS consists of two variants. The ACDS Block 0 system replaces obsolete NTDS computers and display consoles and incorporates new software. ACDS Block 1 incorporates advanced display and computing system hardware, provides enhanced software performance and adds functional capability including advanced modifiable doctrine and Joint Tactical Information Distribution (JTIDS) for joint and allied interoperability, increased range and track capability, multisource identification, up-to-date digital maps and embedded training.

ACDS will be replaced with the Ship Self Defense System (SSDS).


Composite Warfare Commander Structure
OTC/CWC
Principle Warfare Commanders
Air Defense Commander (ADC)
Antisubmarine Warfare Commander (ASWC)
Information Warfare Commander (IWC)
Sea Combat Commander (SCC)
Strike Warfare Commander (STWC)
Surface Warfare Commander (SUWC)
Functional Warfare Commanders
Maritime Interception Operations Commander (MIWC)
Mine Warfare Commander (MIWC)
Operational Deception Group Commander
Screen Commander (SC)
Underway Replenishment Group (URG) Commander
Coordinators
Air Resource Element Coordinator (AREC)
Cryptologic Resources Coordinator (CRC)
Force Track Coordinator (FTC)
Helicopter Element Coordinator (HEC)
Launch Area Coordinator (LAC)
Airspace Control Authority (ACA)
Force Over-the-Horizon Coordinator (FOTC)
Submarine Operations Coordinating Authority (SOCA)
TLAM Strike Coordinator (TSC)

CWC STRUCTURE 0531963

AEGIS Weapon System

The AEGIS system is designed as a total weapon system, from detection to kill. It provides immediate and effective capability to counter the current and expected air, surface and subsurface threats.

The heart of the system is an advanced, automatic detect and track, multifunction phased-array radar, the AN/SPY-1. This high-powered (4 MW) radar is able to perform search, track and missile guidance functions simultaneously with a track capacity of over 100 targets.

The computer-based command and decision element is the interface which makes the system capable of simultaneous operation against a multimission threat: anti-air, anti-surface and anti-submarine warfare.

AEGIS Combat System Engineering develops and integrates modifications to the AEGIS Weapon System and integrates combat capabilities developed in other Navy programs into the AEGIS Combat System on CG 47 and DDG 51 class ships.

AEGIS equipped platforms include CG 47, DDG 51, Spanish F-100 and Japanese DDG ship classes.

Automated Digital Network System (ADNS)

This system provides ship and shore Internet Protocol (IP) connectivity which facilitates the merger of 'stovepiped' information-exchange systems and increases the effective throughput of Radio Frequency (RF) circuits. Specifically, it automates the routing and switching of strategic and tactical C^{4}I data via Transmission Control Protocol/Internet Protocol (TCP/IP) networks thereby linking deployed battle-group units with each other and with the Defense Information Systems Network (DISN) ashore via multiple RF paths. ADNS uses Commercial-Off-The-Self (COTS) and Non-Developmental Item (NDI) Joint Tactical Architecture (JTA), compliant hardware (routers, processors and switches) and commercial-compliant software in a standard rack system. In total, 224 shipboard and four shore sites (Network Operations Centers) have been fielded. Afloat installations include Carriers, Amphibious Ships, Command Ships, Cruisers, Destroyers and Frigates. The four shore sites are at the three Naval Computer and Telecommunications Area Master Stations (NCTAMS) and at Bahrain.

Challenge Athena (WSC-8)

The Challenge Athena Commercial Wideband Satellite Communications Program is a full-duplex, high-data-rate (1.544 Mbps) communications link (wideband) providing access to high-volume primary national imagery dissemination; intelligence database transfers; video tele-conferencing, tele-medicine, tele-training and telephone services; and other computer data systems. Challenge Athena also supports tactical strike and Tomahawk Land-Attack Cruise Missile mission planning, the Defence Information Support Network (DISN) Joint Interoperable Networks, including Joint Worldwide Intelligence Communications System (JWICS), Unclassified/Secret Internet Protocol Router Networks, and Air Tasking Order/Mission Data Update (ATO/MDU) transmissions. The programme uses commercial satellite connectivity, COTS and non-developmental items (NDI) to augment existing, over-burdened military satellite communications systems. The initial focus has been to get Challenge Athena terminals to Joint Task Force command-capable warships (for example, carriers and air-capable amphibious assault ships). Medium data-rate connectivity is being extended to Amphibious Assault Ships and other surface warships and logistic support ships via Group IT-21 wide area network.

Common Data Link – Navy (USQ-123 CDL-N)

This programme provides a common data terminal for the receipt of signal and imagery intelligence data from remote sensors and transmission of link and sensor control data to airborne platforms. CDL-N interfaces with shipboard processors of the Joint Services Imagery Processing System – Navy (JSIPS-N) and the Battle Group Passive Horizon Extension System Terminal (BGPHES), and links with BGPHES via CDL airborne terminal to airborne sensor systems. CDL-N is in production and the first ten systems are installed in Carriers. Future installations are planned for the remaining carriers, amphibious ships and command ships.

Co-operative Engagement Capability (CEC)

CEC combines tracking data from surface ships, aircraft and land-based sensors and distributes it to all participating units to create a single, common air defense tactical display. The result is a superior, fire-control quality, composite air picture based on all sensor data available.

By networking and distributing information, each unit can view the theatre air situation through the collective sensors of other networked combatants. CEC provides earlier detection and more consistent tracking and permits engagements of targets to begin without actually tracking them with own-ship sensors.

CEC equipped platforms will include CG 47, DDG 51, CV/CVN, LHD, LPD 17, DD(X) and LCS class ships; and the E-2C Hawkeye aircraft.

Global Broadcast Service (GBS)

GBS augments and interfaces with other communications systems to provide a continuous, high-speed, one-way flow of high-volume multimedia information supporting routine operations, training and exercises, special activities, crisis-response, situational awareness, weapons targeting, intelligence, and the transition to and conduct of operations (including Homeland Defense) short of nuclear war. A joint Navy-Air Force-Army and Defense Information Systems Agency (DISA) programme, the GBS space segment is being implemented in three phases. The second phase comprises the Navy-sponsored interim-GBS capability hosted on the UHF Follow-On communications satellites. GBS Phase II coverage and capacity will be increased by the launch of three Wideband Gapfiller Satellite (WGS). Phase III will be part of the Transformational Communications MILSATCOM (TCM) from 2009. This system is in transition to an enhanced architecture to accommodate WGS increases and eliminate limitations in sharing and efficiently re-allocating broadcast resources. Transition requires replacement of fielded systems from FY04 to FY06.

Global Command and Control System (GCCS)

GCCS is a comprehensive, worldwide network-centric system which provides the National Command Authority (NCA), Joint Chiefs of Staff, combatant and functional unified commands, Services, Defense Agencies, Joint Task Forces and their Service components, and others with information processing and dissemination capabilities necessary to conduct Command and Control (C^2) of forces. GCCS is a means to implement the Command, Control, Communications, Computers, and Intelligence for the Warrior (C^{4}IFTW) concept. GCCS provides the operational commanders with a near-realtime Common Operational Picture, intelligence information, collaborative joint operational planning and execution tools, and other information necessary for the execution of joint operations.

Global Command and Control System (Maritime) (GCCS-M) (ex-JMCIS)

As the naval implementation of GCCS, GCCS-Maritime (GCCS-M) is the Office of the Secretary of Defense (OSD) designated command and control (C^2) migration system for the Navy, representing the evolutionary integration of many previous C^2 and intelligence systems. It supports multiple warfighting, manpower and logistics missions for commanders at every echelon, in all afloat, ashore, and tactical naval environments, and for joint, coalition, and allied forces, provides a complete command and control solution to the Fleet with appropriate Navy specific software applications, with interfaces to a variety of communications, databases and computer systems.

GCCS-M meets the Joint and Service requirements for a single, integrated, scaleable Command, Control, Computer, and Intelligence (C^{3}I) system that receives, displays, correlates, fuses and maintains geo-locational track information on friendly, hostile, and neutral land, sea and air forces and integrates it with available intelligence and environmental information. The product of GCCS-M is a near-realtime, fused situational awareness picture that supports C^2 requirements for decision makers through every level of conflict from peace-time through war. Key capabilities include:

- Multisource information management
- Display and dissemination through extensive communications interfaces
- Multisource data fusion and analysis/decision making tools
- Force co-ordination

GCCS-M is implemented afloat (formerly referred to as Navy Tactical Command System-Afloat (NTCS-A) and Joint Maritime Command Information System (JMCIS) Afloat), at ashore fixed command centers (formerly referred to as Operational Support System (OSS) and JMCIS Ashore), and as the command and control (C^2) portion of mobile command centers (formerly known as Tactical Support Center (TSC) and JMCIS Tactical-Mobile). GCCS-M now refers to all three GCCS-M implementations.

Integrated Broadcast Service/Joint Tactical Terminal (IBS/JTT)

This programme supports indications and warning (I&W), surveillance and targeting data requirements of operational commanders and targeting staffs across all naval warfare areas. Comprising broadcast receiver/transponder equipment that provides target-quality data to tactical users, IBS is a 'system of systems' that will migrate TRAP Data Dissemination System (TDDS), Tactical Information Broadcast Service (TIBS), Tactical Reconnaissance Intelligence Exchange System (TRIXS) and Tactical Data Exchange – B (TACIXS-B) UHF broadcasts into an integrated service with a common format. IBS will also be able to send data via other communications paths, such as SHF, EHF and GBS. The US Army-procured Joint Tactical Terminal will receive, decrypt, process, format and distribute tactical data according to preset user-defined criteria across open-architecture equipment.

Integrated Radar Optical Surveillance and Sighting System (IROS)

IROS3 is a demonstration Shipboard Protection System for ships alongside, at anchorage, or passing through restricted waterways. It consists of two stabilised day/night imagers with laser range-finding capability, two 30-million candle watt stabilised searchlights, two stabilised small arms platforms each outfitted with a GAU-17 Mk 44 Mini-Gun and day/night imagers, and wireless connectivity with patrol boats. In addition, the system utilises AN/SPS-73 NAV radar track data, GPS data, and Digital Nautical Chart data, which are fed into two networked consoles residing on the ship's bridge and in the Combat Information Centre. It combines communication data and sensor information as well as semi-auto-automated engagement. The system is currently installed aboard USS *Ramage* and has undergone extensive testing in the laboratory and live test firing at sea. The system is scheduled to be installed in a variety of ship classes, including surface combatants, patrol boats, amphibious and auxiliary ships, and Coast Guard cutters from FY05.

Joint Service Imagery Processing System (JSIPS)

JSIPS-N is the component of the joint programme to receive and exploit infra-red and electro-optical imagery from tactical airborne reconnaissance systems. The Navy is calling for JSIPS to be installed on all aircraft carriers and amphibious assault ships, and requirements for command ships have also been addressed. JSIPS will also provide the USMC with an 'amphibious' — afloat/ashore — processing facility that can be deployed as an integral element of Marine Air-Ground Task Forces (MAGTFs). JSIPS upgrades being considered include a common radar processor for both tactical and theatre-level radars, and an automated capability to insert and process mapping, charting and geodesy products.

Joint Surveillance Target Attack Radar System (JSTARS)

JSTARS is described as a 'bulletproof anti-jam datalink', utilising omnidirectional broadcast on UHF SATCOM. It receives and transmits real time MTI/FTI/SAR data via a secure uplink and downlink. It is used to demonstrate 'sensor to shooter' technology.

Joint Tactical Information Distribution System (JTIDS)/Link 16

This high-capacity digital information distribution system provides rapid, secure, jam-resistant/frequency-hopping communications, navigation and identification capabilities up to and including secret information. JTIDS provides Navy aircraft, ships and submarines and USMC units with crypto-secure, jam-resistant and low-probability-of-exploitation tactical data and voice communications. Upgrades will provide capabilities for common-grid navigation and automatic communications relay. JTIDS has also been identified as the preferred communications link for Navy and other-service theatre ballistic missile defence programmes. JTIDS is the first element in the overall implementation of the Joint Message Standard (Link 16), and will provide the single, real-time, joint datalink network. Several NATO countries are participating in the JTIDS/Link 16 programme.

Land Attack Warfare System (LAWS)

This prototype system networks all shooters (tactical air, shore artillery and seaborne fire support) into a Battle Local Area Network (Battle LAN) known as the 'Ring of Fire'. This automatically assigns fire missions to the most capable unit in the Battle LAN. LAWS controls preplanned missions, including Tomahawk, as well as time critical calls for fire from land forces. Fleet Battle Experiment ALFA was the initial test of this system.

Link Eleven Improvement Program (LEIP)

This programme improves Link 11 connectivity and reliability and supports NILE (NATO Improved Link 11 and Link 22). Link 11 will be the common datalink for all US Navy and allied ships (seven NATO navies) not equipped with JTIDS/Link 16. NILE/Link 22 is an element of the TADIL-J family. LEIP thus provides improvements in fleet support, training, commonality and interoperability. In addition to NILE, the programme comprises the Common Shipboard Data Terminal Set (CSDTS), Mobile Universal Link Translator System (MULTS), and Multiple Unit Link 11 Test and Operational Training System (MULTOTS). Some 190 CSDTS installations are planned.

Miniature Demand Assigned Multiple Access (Mini-DAMA)

Mini-DAMA is a communications system that supports the exchange of secure and non-secure Battle Group coordination data, tactical data and voice between base band processing equipment over UHF SATCOM, 25/5 kHz DAMA, 25/5 kHz Non-DAMA, and UHF LOS. In 2000, the Navy completed installations for submarines AV(2) and mine warfare ships V(2). Aircraft installations V(3) continue. These Mini-DAMA radio installations provide the channel utilisation efficiencies by employing Time Division Multiple Access (TDMA) methods that have been achieved for surface warfare ships and shore stations equipped with the larger version TD-1271 DAMA multiplexer.

Mission Data System (MDS)

This system allows planners to view Tomahawk Land Attack Missile information. MDS receives via TADIXS A or OTCIXS I digital Mission Data Updates (MDUs) from the Cruise Missile Support Activity (CMSA) and stores preplanned TLAM strike plans. Initial TLAM mission data fill is distributed via magnetic tape media provided by the CMSA.

Multifunctional Information Distribution – Low Volume Terminal (MIDS-LVT)

This is a multinational co-operative development programme to design, develop and produce a tactical distribution system equivalent to JTIDS but in a low-volume, low-weight, compact terminal for aircraft. US Navy/USMC procurement is targeted for the F/A-18 Hornet aircraft and attack submarines. Other NATO participants in the programme include France, Germany, Italy and Spain. MIDS-LVT will employ the Link 16 (TADIL-J) message standards.

Ocean Surveillance Information System (OSIS) Evolutionary Development (OED)

The OSIS Evolutionary Development programme is a shore-based intelligence system providing on-line, automated, near-realtime netted C^2 support to the Unified Commanders in Chief, JTF commanders afloat and ashore, individual ships and allies. It receives, processes and disseminates all-source information on fixed and mobile targets at sea and on land. OED provides a multilevel secure system at message level and automated event-by-event reporting. It is evolving into a JMCIS-compliant system, the OSIS Evolutionary Development (OED) system, which will employ JMCIS software and hardware (TAC-X series). Land-based sites operate in the US, at US facilities overseas, and in Australia, UK, Japan and Korea.

Radiant Mercury

Radiant Mercury is a rules-driven (Boolean logic), multilevel security (MLS) system meeting operational requirements to sanitise highly classified data automatically and provide it as SI-GENSER-Releasable to the shooters while protecting sources, methods, national sensitivities and foreign releasability of the tactical picture. In order to enhance interoperability, Radiant Mercury can transliterate a message or a field to another format, permitting rapid sharing of data within commands and among coalition forces.

Ship Self-Defense System (SSDS) Mk 1 and 2

SSDS provides selected ships with greater capability to defend themselves against Anti-Ship Cruise Missile (ASCM) attack. It integrates and co-ordinates all existing sensors and weapons aboard a warship. The SSDS software allows automation of the detect-to-engage sequence. SSDS hardware consists primarily of commercial off-the-shelf (COTS) components that can interface with existing legacy shipboard equipment.

SSDS Mk 1 provides doctrine-based, Quick Reaction Combat Capability (QRCC), plus automated detect through multithreat engagement capability. It enhances capabilities for Force Protection using own-ship and remote data in support of AAW capstone requirements.

SSDS Mk 2 integrates with Co-operative Engagement Capability (CEC) and provides the QRCC of SSDS Mk 1 and selected features of the Advanced Combat Direction System (ACDS) to support multiwarfare area capability, improve joint interoperability and provide an integrated, coherent real-time command and control system for CV/CVN, LPD and LHD class ships. SSDS Mk 1 has been installed in 12 LDSs; and SSDS Mk 2 in three CVNs (CVN 68, CVN 76, CVN 69) and one LPD (LPD 17).

Theatre Battle Management Core System (TBMCS)

TBMCS replaces the Contingency Theatre Automated Planning System (CTAPS) as the only command and control system authorised to produce the Air Tasking Order (ATO). TBMCS has the capability to plan and execute air operations in any theatre of operations and is considered the core system for the Air Force's Air Operation Center (AOC). All services use TBMCS and, within the USN, it is installed in carriers, command ships and large-deck amphibious ships (LHA/LHD).

Major Commercial Shipyards

Atlantic Drydock, Jacksonville, Florida
Atlantic Marine, Jacksonville, Florida
Baltimore Marine Industries (ex-Bethlehem Steel), Sparrows Point, Maryland
Bender Shipbuilding and Repair, Mobile, Alabama
Detyens Shipyard, Charleston, South Carolina
General Dynamics Corporation, Bath Iron Works, Bath, Maine
General Dynamics Corporation, Electric Boat Division, Groton, Connecticut
General Dynamics Corporation, National Steel and Shipbuilding Company, San Diego, California
Halter Marine Inc, Gulfport, Mississippi
Metro Marine, Norfolk, Virginia
Norshipco, Norfolk, Virginia
Northrop Grumman, Avondale Industries, New Orleans, Louisiana
Northrop Grumman, Ingalls Shipbuilding, Pascagoula, Mississippi
Northrop Grumman, Newport News Shipbuilding, Newport News, Virginia
Southwest Marine Inc, San Diego, California
Todd Pacific Shipyards, Seattle, Washington

Notes: All the yards mentioned have been involved in naval shipbuilding, overhaul, or modernisation. General Dynamics/ Electric Boat yard is engaged only in submarine work and Newport News is the only US shipyard capable of building nuclear-powered aircraft carriers.

Major Warships Taken Out of Service 2001 to mid-2004

Submarines

2001	*Kamehameha*
2004	*Parche*

Aircraft Carriers

2003	*Constellation*

Destroyers

2001	*Hewitt, Caron, David R Ray*
2002	*David R Ray, John Young, Peterson, Nicholson*
2003	*Kinkaid, Fife, Paul F Foster, Arthur W Radford, Hayler, Oldendorf, Briscoe, Deyo, Elliot*

Frigates

2002	*Wadsworth* (to Poland), *Samuel Eliot Morison* (to Turkey)
2003	*Sides, George Philip, Estocin* (to Turkey)

Amphibious Forces

2002	*Frederick, Inchon*
2003	*Mount Vernon, Portland, Anchorage*

Special Mission Ships

2001	*Kane* (to Turkey)

Auxiliaries

2002	*Butte*

HULL NUMBERS

Notes: Ships in reserve not included.

SUBMARINES

Ballistic Missile Submarines

Ohio class

SSBN 730	Henry M Jackson
SSBN 731	Alabama
SSBN 732	Alaska
SSBN 733	Nevada
SSBN 734	Tennessee
SSBN 735	Pennsylvania
SSBN 736	West Virginia
SSBN 737	Kentucky
SSBN 738	Maryland
SSBN 739	Nebraska
SSBN 740	Rhode Island
SSBN 741	Maine
SSBN 742	Wyoming
SSBN 743	Louisiana

Cruise Missile Submarines

Ohio class

SSGN 726	Ohio (conversion)
SSGN 727	Michigan (conversion)
SSGN 728	Florida (conversion)
SSGN 729	Georgia (conversion)

Attack Submarines

Seawolf class

SSN 21	Seawolf
SSN 22	Connecticut
SSN 23	Jimmy Carter (bldg)

Los Angeles class

SSN 688	Los Angeles
SSN 690	Philadelphia
SSN 691	Memphis
SSN 698	Bremerton
SSN 699	Jacksonville
SSN 700	Dallas
SSN 701	La Jolla
SSN 705	City of Corpus Christi
SSN 706	Albuquerque
SSN 707	Portsmouth
SSN 708	Minneapolis-Saint Paul
SSN 709	Hyman G Rickover
SSN 710	Augusta
SSN 711	San Francisco
SSN 713	Houston
SSN 714	Norfolk
SSN 715	Buffalo
SSN 716	Salt Lake City
SSN 717	Olympia
SSN 718	Honolulu
SSN 719	Providence
SSN 720	Pittsburgh
SSN 721	Chicago
SSN 722	Key West
SSN 723	Oklahoma City
SSN 724	Louisville
SSN 725	Helena
SSN 750	Newport News
SSN 751	San Juan
SSN 752	Pasadena
SSN 753	Albany
SSN 754	Topeka
SSN 755	Miami
SSN 756	Scranton
SSN 757	Alexandria
SSN 758	Asheville
SSN 759	Jefferson City
SSN 760	Annapolis
SSN 761	Springfield
SSN 762	Columbus
SSN 763	Santa Fe
SSN 764	Boise
SSN 765	Montpelier
SSN 766	Charlotte
SSN 767	Hampton
SSN 768	Hartford
SSN 769	Toledo
SSN 770	Tucson
SSN 771	Columbia
SSN 772	Greeneville
SSN 773	Cheyenne

Virginia class

SSN 774	Virginia (bldg)
SSN 775	Texas (bldg)
SSN 776	Hawaii (bldg)
SSN 777	North Carolina (bldg)

SURFACE COMBATANTS

Aircraft Carriers

Kitty Hawk class

CV 63	Kitty Hawk

John F Kennedy class

CV 67	John F Kennedy

Enterprise class

CVN 65	Enterprise

Nimitz class

CVN 68	Nimitz
CVN 69	Dwight D Eisenhower
CVN 70	Carl Vinson
CVN 71	Theodore Roosevelt
CVN 72	Abraham Lincoln
CVN 73	George Washington
CVN 74	John C Stennis
CVN 75	Harry S Truman
CVN 76	Ronald Reagan
CVN 77	George H W Bush (bldg)

Cruisers

Ticonderoga class

CG 47	Ticonderoga
CG 48	Yorktown
CG 49	Vincennes
CG 50	Valley Forge
CG 51	Thomas S Gates
CG 52	Bunker Hill
CG 53	Mobile Bay
CG 54	Antietam
CG 55	Leyte Gulf
CG 56	San Jacinto
CG 57	Lake Champlain
CG 58	Philippine Sea
CG 59	Princeton
CG 60	Normandy
CG 61	Monterey
CG 62	Chancellorsville
CG 63	Cowpens
CG 64	Gettysburg
CG 65	Chosin
CG 66	Hue City
CG 67	Shiloh
CG 68	Anzio
CG 69	Vicksburg
CG 70	Lake Erie
CG 71	Cape St George
CG 72	Vella Gulf
CG 73	Port Royal

Destroyers

Spruance class

DD 963	Spruance
DD 975	O'Brien
DD 978	Stump
DD 985	Cushing
DD 987	O'Bannon
DD 988	Thorn
DD 992	Fletcher

Arleigh Burke class

DDG 51	Arleigh Burke
DDG 52	Barry
DDG 53	John Paul Jones
DDG 54	Curtis Wilbur
DDG 55	Stout
DDG 56	John S McCain
DDG 57	Mitscher
DDG 58	Laboon
DDG 59	Russell
DDG 60	Paul Hamilton
DDG 61	Ramage
DDG 62	Fitzgerald
DDG 63	Stethem
DDG 64	Carney
DDG 65	Benfold
DDG 66	Gonzalez

Destroyers

Arleigh Burke class — *continued*

DDG 67	Cole
DDG 68	The Sullivans
DDG 69	Milius
DDG 70	Hopper
DDG 71	Ross
DDG 72	Mahan
DDG 73	Decatur
DDG 74	McFaul
DDG 75	Donald Cook
DDG 76	Higgins
DDG 77	O'Kane
DDG 78	Porter
DDG 79	Oscar Austin
DDG 80	Roosevelt
DDG 81	Winston S Churchill
DDG 82	Lassen
DDG 83	Howard
DDG 84	Bulkeley
DDG 85	McCampbell
DDG 86	Shoup
DDG 87	Mason
DDG 88	Preble
DDG 89	Mustin
DDG 90	Chaffee
DDG 91	Pinckney (bldg)
DDG 92	Momsen (bldg)
DDG 93	Chung-Hoon (bldg)
DDG 94	Nitze (bldg)
DDG 95	James E Williams (bldg)
DDG 96	Bainbridge
DDG 97	Halsey (bldg)
DDG 98	Sherman (bldg)
DDG 99	Farragut (bldg)

Frigates

Oliver Hazard Perry class

FFG 8	McInerney
FFG 28	Boone (NRF)
FFG 29	Stephen W Groves (NRF)
FFG 32	John L Hall
FFG 33	Jarrett
FFG 36	Underwood
FFG 37	Crommelin (NRF)
FFG 38	Curts (NRF)
FFG 39	Doyle (NRF)
FFG 40	Halyburton
FFG 41	McClusky (NRF)
FFG 42	Klakring (NRF)
FFG 43	Thach
FFG 45	De Wert
FFG 46	Rentz
FFG 47	Nicholas
FFG 48	Vandegrift
FFG 49	Robert G Bradley
FFG 50	Taylor
FFG 51	Gary
FFG 52	Carr
FFG 53	Hawes
FFG 54	Ford
FFG 55	Elrod
FFG 56	Simpson (NRF)
FFG 57	Reuben James
FFG 58	Samuel B Roberts
FFG 59	Kauffman
FFG 60	Rodney M Davis (NRF)
FFG 61	Ingraham

Coastal Patrol Craft

Cyclone class

PC 2	Tempest
PC 3	Hurricane
PC 4	Monsoon
PC 5	Typhoon
PC 6	Sirocco
PC 7	Squall
PC 8	Zephyr
PC 9	Chinook
PC 10	Firebolt
PC 11	Whirlwind
PC 12	Thunderbolt
PC 13	Shamal
PC 14	Tornado

COMMAND SHIPS

Blue Ridge class

LCC 19	Blue Ridge
LCC 20	Mount Whitney

Raleigh and Austin class

AGF 3	La Salle
AGF 11	Coronado

AMPHIBIOUS FORCES

Amphibious Assault Ships

Wasp class

LHD 1	Wasp
LHD 2	Essex
LHD 3	Kearsarge
LHD 4	Boxer
LHD 5	Bataan
LHD 6	Bonhomme Richard
LHD 7	Iwo Jima
LHD 8	Makin Island (bldg)

Tarawa class

LHA 1	Tarawa
LHA 2	Saipan
LHA 3	Belleau Wood
LHA 4	Nassau
LHA 5	Peleliu

Amphibious Transport Docks

Austin class

LPD 4	Austin
LPD 5	Ogden
LPD 6	Duluth
LPD 7	Cleveland
LPD 8	Dubuque
LPD 9	Denver
LPD 10	Juneau
LPD 12	Shreveport
LPD 13	Nashville
LPD 14	Trenton
LPD 15	Ponce

San Antonio class

LPD 17	San Antonio (bldg)
LPD 18	New Orleans (bldg)
LPD 19	Mesa Verde (bldg)
LPD 20	Green Bay (bldg)
LPD 21	New York (bldg)
LPD 22	San Diego (ord)

Amphibious Cargo Ships

Whidbey Island class

LSD 41	Whidbey Island
LSD 42	Germantown
LSD 43	Fort McHenry
LSD 44	Gunston Hall
LSD 45	Comstock
LSD 46	Tortuga
LSD 47	Rushmore
LSD 48	Ashland

Harpers Ferry class

LSD 49	Harpers Ferry
LSD 50	Carter Hall
LSD 51	Oak Hill
LSD 52	Pearl Harbor

MINE WARFARE FORCES

Mine Countermeasures Ships

Avenger class

MCM 1	Avenger (NRF)
MCM 2	Defender (NRF)
MCM 3	Sentry (NRF)
MCM 4	Champion (NRF)
MCM 5	Guardian
MCM 6	Devastator
MCM 7	Patriot
MCM 8	Scout
MCM 9	Pioneer
MCM 10	Warrior
MCM 11	Gladiator (NRF)
MCM 12	Ardent
MCM 13	Dextrous
MCM 14	Chief

Osprey class

MHC 51	Osprey (NRF)
MHC 52	Heron (NRF)
MHC 53	Pelican (NRF)
MHC 54	Robin (NRF)
MHC 55	Oriole (NRF)
MHC 56	Kingfisher (NRF)
MHC 57	Cormorant (NRF)
MHC 58	Black Hawk (NRF)
MHC 59	Falcon (NRF)
MHC 60	Cardinal
MHC 61	Raven
MHC 62	Shrike (NRF)

UNDERWAY REPLENISHMENT SHIPS

Fast Combat Support Ships

Sacramento class

AOE 1	Sacramento
AOE 2	Camden
AOE 3	Seattle
AOE 4	Detroit

MATERIAL SUPPORT SHIPS

Submarine Tenders

Emory S Land class

AS 39	Emory S Land
AS 40	Frank Cable

Salvage Ships

Safeguard class

ARS 50	Safeguard
ARS 51	Grasp
ARS 52	Salvor
ARS 53	Grapple

MISCELLANEOUS

Auxiliary Research Submarine

Dolphin class

AGSS 555	Dolphin

Oceanographic Research Ships

AGOR 14	Melville
AGOR 15	Knorr
AGOR 23	Thomas G Thompson
AGOR 24	Roger Revelle
AGOR 25	Atlantis
AGOR 26	Kilo Moana
R 104	Ronald H Brown

MILITARY SEALIFT COMMAND

NAVAL FLEET AUXILIARY FORCE

Fast Combat Support Ships

T-AOE 6	Supply
T-AOE 7	Rainier
T-AOE 8	Arctic
T-AOE 10	Bridge

Ammunition Ships

T-AE 26	Kilauea
T-AE 28	Santa Barbara
T-AE 32	Flint
T-AE 33	Shasta
T-AE 34	Mount Baker
T-AE 35	Kiska

Cargo and Ammunition Ships

T-AKE 1	Lewis and Clark (bldg)
T-AKE 2	Sacagawea (bldg)

Combat Stores Ships

T-AFS 3	Niagara Falls
T-AFS 5	Concord
T-AFS 7	San Jose
T-AFS 8	Sirius
T-AFS 9	Spica
T-AFS 10	Saturn

Hospital Ships

T-AH 19	Mercy
T-AH 20	Comfort

Oilers

Henry J Kaiser class

T-AO 187	Henry J Kaiser (PREPO)
T-AO 189	John Lenthall
T-AO 193	Walter S Diehl
T-AO 194	John Ericsson
T-AO 195	Leroy Grumman
T-AO 196	Kanawha
T-AO 197	Pecos
T-AO 198	Big Horn
T-AO 199	Tippecanoe
T-AO 200	Guadalupe
T-AO 201	Patuxent
T-AO 202	Yukon
T-AO 203	Laramie
T-AO 204	Rappahannock

Fleet Ocean Tugs

Powhatan class

T-ATF 166	Powhatan
T-ATF 168	Catawba
T-ATF 169	Navajo
T-ATF 170	Mohawk
T-ATF 171	Sioux
T-ATF 172	Apache

SPECIAL MISSION SHIPS

Acoustic Survey Ship

T-AG 195	Hayes

Cable Repair Ship

T-ARC 7	Zeus

Missile Range Instrumentation Ships

T-AGM 23	Observation Island

Navigation Test/Launch Area Support Ships

T-AG 45	Waters

Ocean/Air Surveillance Ships

T-AGOS 19	Victorious
T-AGOS 21	Effective
T-AGOS 22	Loyal
T-AGOS 23	Impeccable

STRATEGIC SEALIFT FORCE

Fast Sealift Ships

T-AKR 287	Algol
T-AKR 288	Bellatrix
T-AKR 289	Denebola
T-AKR 290	Pollux
T-AKR 291	Altair
T-AKR 292	Regulus
T-AKR 293	Capella
T-AKR 294	Antares

Large, Medium-speed Ro-Ro

T-AKR 295	Shughart
T-AKR 296	Gordon
T-AKR 297	Yano
T-AKR 298	Gilliland
T-AKR 300	Bob Hope
T-AKR 301	Fisher
T-AKR 302	Seay
T-AKR 303	Mendonca
T-AKR 304	Pililaau
T-AKR 305	Brittin
T-AKR 306	Benavidez

Tankers

T-AOT 1121	Gus W Darnell
T-AOT 1122	Paul Buck
T-AOT 1123	Samuel L Cobb
T-AOT 1124	Richard G Matthiesen
T-AOT 1125	Lawrence H Gianella

Surveying Ships/Oceanographic Ships

T-AGS 51	John McDonnell
T-AGS 60	Pathfinder
T-AGS 61	Sumner
T-AGS 62	Bowditch
T-AGS 63	Henson
T-AGS 64	Bruce C Heezen
T-AGS 65	Mary Sears

PREPOSITIONING PROGRAMME

Container Ships

T-AK 4296	Capt Steven L Bennett
T-AK 4396	Maj Bernard F Fisher
T-AK 4543	Lt Col John U D Page
T-AK 4544	SSGT Edward A Carter Jr
T-AK 4638	A1C William H Pitsenbarger

Large, Medium-Speed, Ro-Ro

T-AKR 310	Watson
T-AKR 311	Sisler
T-AKR 312	Dahl
T-AKR 313	Red Cloud
T-AKR 314	Charlton
T-AKR 315	Watkins
T-AKR 316	Pomeroy
T-AKR 317	Soderman (bldg)

Aviation Logistic Ships

T-AVB 3	Wright
T-AVB 4	Curtiss

Maritime Prepositioning Ships

T-AK 3000	CPL Louis J Hauge, Jr
T-AK 3001	PFC William B Baugh
T-AK 3002	PFC James Anderson, Jr
T-AK 3003	1st Lt Alex Bonnyman
T-AK 3004	PVT Franklin J Phillips
T-AK 3005	SGT Matej Kocak
T-AK 3006	PFC Eugene A Obregon
T-AK 3007	MAJ Stephen W Pless
T-AK 3008	2nd Lt John P Bobo
T-AK 3009	PFC Dewayne T Williams
T-AK 3010	1st Lt Baldomero Lopez
T-AK 3011	1st Lt Jack Lummus
T-AK 3012	SGT William R Button
T-AK 3015	1st Lt Harry L Martin
T-AK 3016	L/Cpl Roy M Wheat
T-AK 3017	GYSGT Fred W Stockham

READY RESERVE FORCE (see page 884)

SUBMARINES

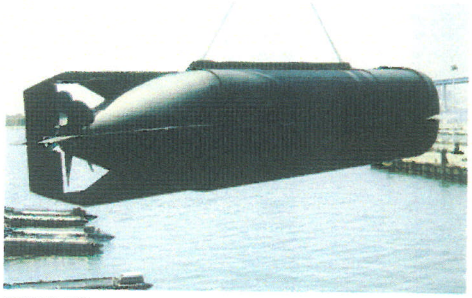
Notes: (1) **Deep submergence vehicles:** The Deep Submergence Vehicles (DSV), including the nuclear-propelled *NR-1*, are listed following the 'Research Ships' section.

(2) **Seal Delivery Vehicles (SDVs):** There are 10 Mk VIII Mod 1 six-man mini wet submersibles in service for naval commando units. These SDVs can be carried by suitably modified SSNs. Range 35 n miles at up to 150 ft. All have been SLEPed from 1995 to improve performance. A new design ASDS (Advanced SEAL Delivery System) is a dry submersible (65 × 10 ft) with electrical propulsion and a crew of two. Designed to operate from a mother submarine, it can carry SEALs and combat gear clandestinely to and from hostile shores. Range is greater than 125 n miles. Optical and communications periscopes and a small sonar are fitted. A prototype was ordered from Northrop Grumman in September 1994 and contractor trials were completed in 2000. Final trials were successfully completed in September 2002. These included launch and recovery of ASDS from a host submarine SSN 722 *Greeneville* over several days to validate its underwater capability. Operational evaluation followed in mid-2003. SSN 776 *Charlotte* is also configured to host ASDS and it is anticipated that two will be carried by the 'Ohio' class SSGNs. The craft can be air-transported.

(3) **Unmanned Undersea Vehicles (UUVs):** Two prototype surface ship-launched vehicles were built under joint ARPA/Navy UUV programmes. Operational testing of the second vehicle, the Mine Search System (MSS), was completed in 1993. The MSS vehicle is 35 ft long and has a titanium hull with a diameter of 44 in. The payload is housed in an internal pressure hull. The propulsion motor is free flooding and develops 12 hp from two battery sections. MSS operational trials demonstrated the performance of mine detection sonars and the ability of a UUV to survey designated areas with precise navigation.

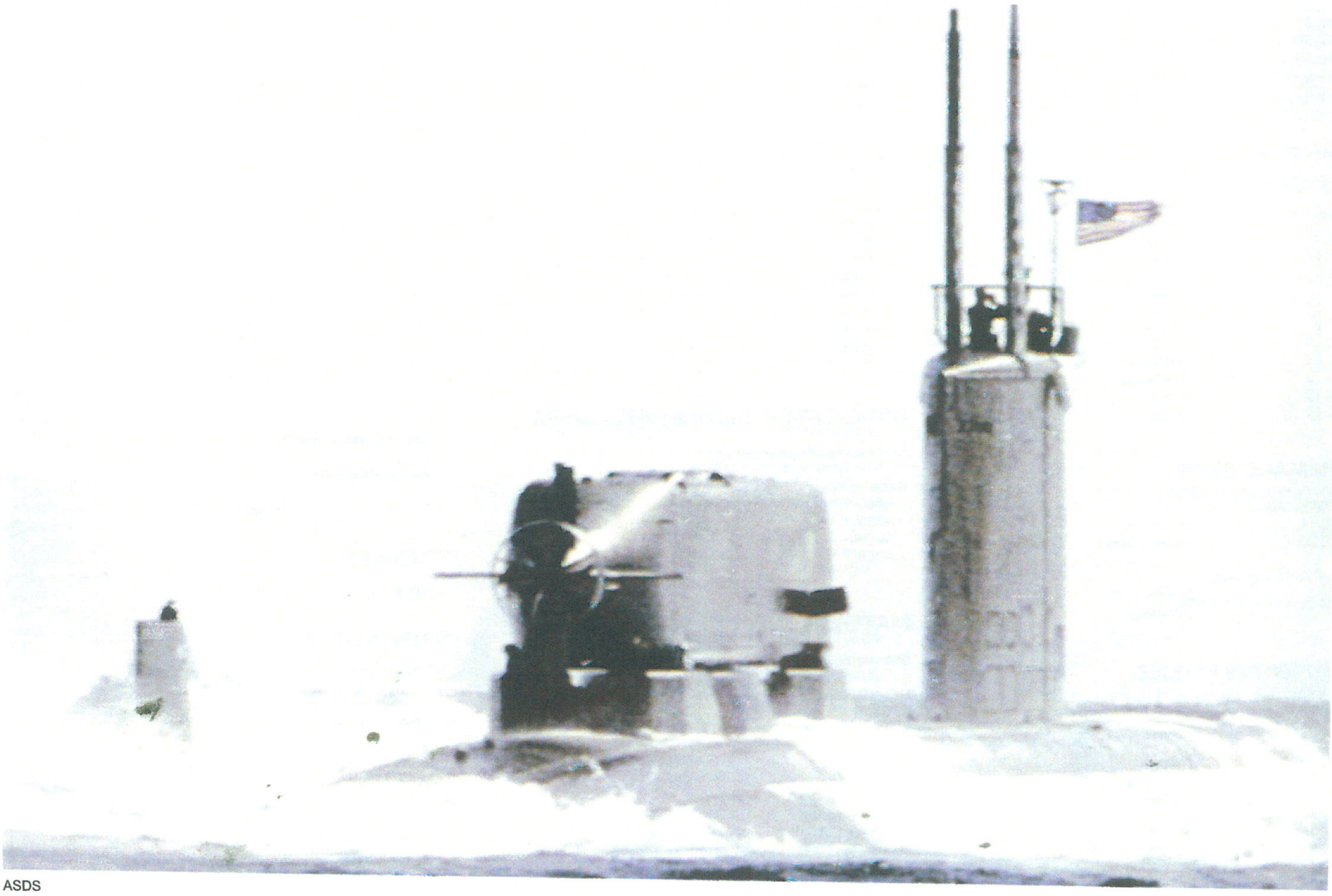
UUVs capable of remote control from either surface ships or submarines are being researched. Roles are limitless but remote sensing and acoustic deception are two obvious front runners. Operating difficulties should not be underestimated.

(4) **Autonomous Undersea Vehicles (AUVs):** Research work is being done with the aim of producing torpedo-launched remote-controlled vehicles for a range of tasks including surveillance, communications and mine warfare. The Long Term Mine Reconnaissance System (LMRS) is to be the USN's first autonomous UUV and is expected to enter service in 2005. Designed to be launched and recovered from a submarine's torpedo tubes, it will provide long range mine-reconnaissance capabilities. Development of Mission-Reconfigurable UUV (MRUUV) began in 2003 following analysis of alternatives for a large displacement vehicle. Initial procurement of two is planned for FY05. A total of ten is expected by FY09.



SDV Mk VIII

*8/1999** / 0033436



ASDS

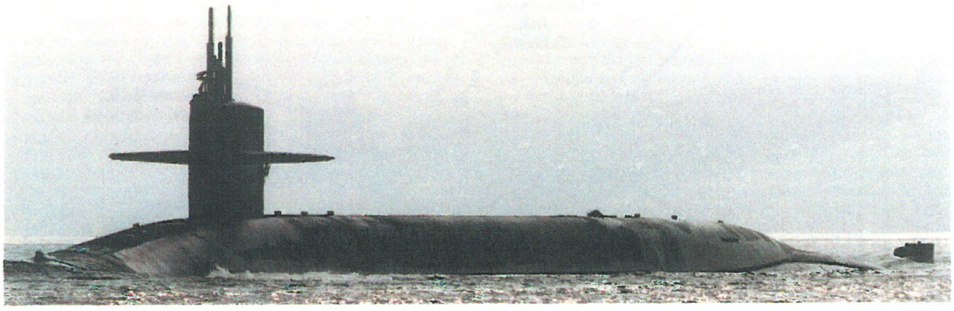
6/2003, US Navy* / 0572767

Strategic Missile Submarines (SSBN)

Notes: The Trident missile fitted SSBN force provides the principal US strategic deterrent under the control of US Strategic Command at Offut Air Force Base, Nebraska. The Strategic Arms Reduction Treaty (START), implemented in December 2001, limits the combined number of SLBM and ICBM re-entry bodies (RBs) to 4,900. Although there may be further bi-lateral agreements with Russia to update verification regimes, the Bush administration has decided to pursue long-term strategic nuclear force reductions without further detailed arms control negotiations. The START II treaty has thus been overtaken. As part of the reduction, the first four 'Ohio' class submarines are no longer required for strategic service. These boats are being converted into conventionally-armed guided missile SSGNs, capable also of deploying Special Forces. Although the missile tubes on SSGNs will not contain SLBMs, they will continue to count against START treaty limits.

14 OHIO CLASS (SSBN)

Name	*No*	*Builders*	*Launched*	*Commissioned*	*F/S*
HENRY M JACKSON	SSBN 730	General Dynamics (Electric Boat Div)	15 Oct 1983	6 Oct 1984	PA
ALABAMA	SSBN 731	General Dynamics (Electric Boat Div)	19 May 1984	25 May 1985	PA
ALASKA	SSBN 732	General Dynamics (Electric Boat Div)	12 Jan 1985	25 Jan 1986	PA
NEVADA	SSBN 733	General Dynamics (Electric Boat Div)	14 Sep 1985	16 Aug 1986	PA
TENNESSEE	SSBN 734	General Dynamics (Electric Boat Div)	13 Dec 1986	17 Dec 1988	AA
PENNSYLVANIA	SSBN 735	General Dynamics (Electric Boat Div)	23 Apr 1988	9 Sep 1989	AA
WEST VIRGINIA	SSBN 736	General Dynamics (Electric Boat Div)	14 Oct 1989	20 Oct 1990	AA
KENTUCKY	SSBN 737	General Dynamics (Electric Boat Div)	11 Aug 1990	13 July 1991	AA
MARYLAND	SSBN 738	General Dynamics (Electric Boat Div)	10 Aug 1991	13 June 1992	AA
NEBRASKA	SSBN 739	General Dynamics (Electric Boat Div)	15 Aug 1992	10 July 1993	AA
RHODE ISLAND	SSBN 740	General Dynamics (Electric Boat Div)	17 July 1993	9 July 1994	AA
MAINE	SSBN 741	General Dynamics (Electric Boat Div)	16 July 1994	29 July 1995	AA
WYOMING	SSBN 742	General Dynamics (Electric Boat Div)	15 July 1995	13 July 1996	AA
LOUISIANA	SSBN 743	General Dynamics (Electric Boat Div)	27 July 1996	6 Sep 1997	AA


TENNESSEE *5/2001* / 0131238

Displacement, tons: 16,600 surfaced; 18,750 dived
Dimensions, feet (metres): 560 × 42 × 36.4
(170.7 × 12.8 × 11.1)
Main machinery: Nuclear; 1 GE PWR S8G; 2 turbines; 60,000 hp *(44.8 MW)*; 1 shaft; 1 Magnetek auxiliary prop motor; 325 hp *(242 kW)*
Speed, knots: 24 dived
Complement: 155 (15 officers)

Missiles: SLBM: 24 Lockheed Trident C4 (730, 731); stellar inertial guidance to 7,400 km *(4,000 n miles)*; thermonuclear warhead of up to 8 MIRV Mk 4 with W76 warhead of 100 kT; CEP 450 m. Trident C4 is to be fully replaced by Trident D5 in 730-733 by 2005.
24 Lockheed Trident D5 (732-743); stellar inertial guidance to 12,000 km *(6,500 n miles)*; thermonuclear warheads of up to 12 MIRVs of either Mk 4 with W76 of 100 kT each, or Mk 5 with W88 of 300-475 kT each; CEP 90 m. A limit of 8 RVs was set in 1991 under the START counting rules.
Torpedoes: 4—21 in *(533 mm)* Mk 68 bow tubes. Gould/Westinghouse Mk 48; ADCAP; wire-guided (option); active/passive homing to 50 km *(27 n miles)*/38 km *(21 n miles)* at 40/55 kt; warhead 267 kg; depth to 900 m *(2,950 ft)*.
Countermeasures: Decoys: 8 launchers for Emerson Electric Mk 2; torpedo decoy.
ESM: WLR-8(V)5; intercept. WLR-10; radar warning.
Combat data systems: DWS-118 and CCS Mk 2 Mod 3 with UYK 43/UYK 44 computers.
Weapons control: Mk 98 fire-control system.
Radars: Surface search/navigation/fire control: BPS 15A/H; I/J-band.
Sonars: IBM BQQ 6; passive search.
Raytheon BQS 13; spherical array for BQQ 6.
Ametek BQS 15; active/passive for close contacts; high frequency.
Western Electric BQR 15 (with BQQ 9 signal processor); passive towed array. TB 23 thin line array.
Raytheon BQR 19; active for navigation; high frequency.

Programmes: The size of the SSBN forces has been reduced to 14 hulls. *Ohio, Michigan, Florida* and *Georgia* are undergoing conversion to SSGN.
Modernisation: *Alaska* and *Nevada* have been upgraded to deploy Trident D5 missiles. *Jackson* is to follow by 2005 and *Alabama* by 2008. 'Ohio' class SSBNs are being upgraded with ARCI (Acoustic Rapid COTS insertion) sonar and CCS Mk 2 Block 1 fire-control systems. Installation in *Alaska, Nevada* and *Pennsylvania* is complete.
Structure: The size of the Trident submarine is dictated primarily by the 24 vertically launched Trident missiles and the larger reactor plant to drive the ship. The reactor has a nuclear core life of about 20 years between refuellings. Diving depth is 244 m *(800 ft)*. Kollmorgen Type 152 and Type 82 periscopes. Mk 19 Air Turbine Pump for torpedo discharge.
Operational: Pacific Fleet units are based at Bangor, Washington, while the Atlantic Fleet units are based at King's Bay, Georgia. In the current state of worldwide tensions, a modified alert status has been implemented. Single crews were considered but rejected. Hull life of the class is extended to 42 years.

UPDATED

MARYLAND *6/1999, van Ginderen Collection* / 0084084

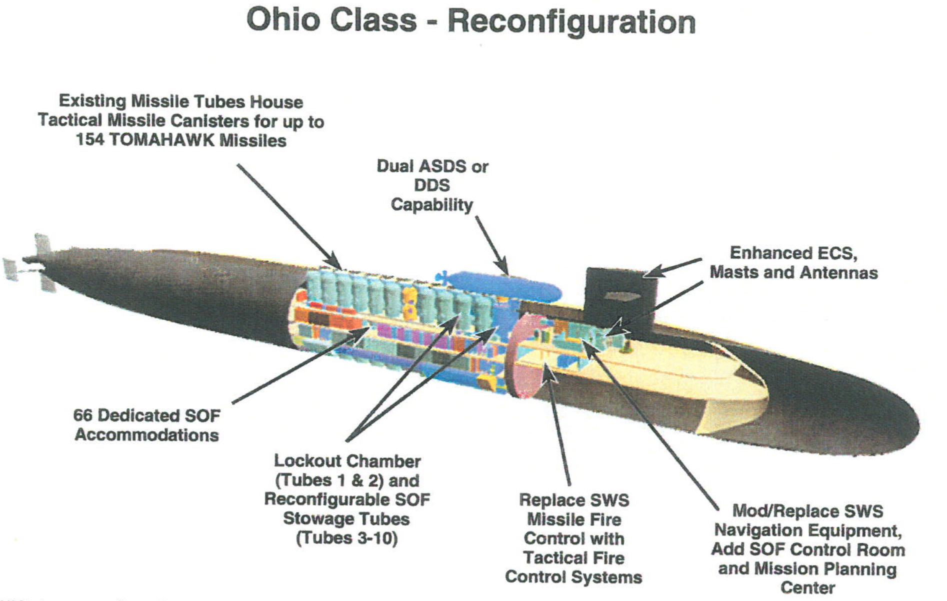
Cruise Missile Submarines (SSGN)

0 + 4 OHIO CLASS (SSGN)

Name	*No*	*Builders*	*Launched*	*Commissioned*	*F/S*
OHIO	SSGN 726 (ex-SSBN 726)	General Dynamics (Electric Boat Div)	7 Apr 1979	11 Nov 1981	Conv
MICHIGAN	SSGN 727 (ex-SSBN 727)	General Dynamcis (Electric Boat Div)	26 Apr 1980	11 Sep 1982	Conv
FLORIDA	SSGN 728 (ex-SSBN 728)	General Dynamics (Electric Boat Div)	14 Nov 1981	18 June 1983	Conv
GEORGIA	SSGN 729 (ex-SSBN 729)	General Dynamics (Electric Boat Div)	6 Nov 1982	11 Feb 1984	Conv

Displacement, tons: 16,600 surfaced; 18,750 dived
Dimensions, feet (metres): 560 × 42 × 36.4 *(170.7 × 12.8 × 11.1)*
Main machinery: Nuclear; 1 GE PWR S8G; 2 turbines; 60,000 hp *(44.8 MW)*; 1 shaft; 1 Magnetek auxiliary prop motor; 325 hp *(242 kW)*
Speed, knots: 24 dived
Complement: 155 (15 officers)

Missiles: SLCM: up to 154 Tomahawk and Tactical Tomahawk.
Torpedoes: 4—21 in *(533 mm)* Mk 68 bow tubes. Gould/Westinghouse Mk 48; ADCAP; wire-guided (option); active/passive homing to 50 km *(27 n miles)*/38 km *(21 n miles)* at 40/55 kt; warhead 267 kg; depth to 900 m *(2,950 ft)*.
Countermeasures: Decoys: 8 launchers for Emerson Electric Mk 2; torpedo decoy.
ESM: WLR-8(V)5; intercept. WLR-10; radar warning.


Ohio Class - Reconfiguration
Existing Missile Tubes House Tactical Missile Canisters for up to 154 TOMAHAWK Missiles
Dual ASDS or DDS Capability
Enhanced ECS, Masts and Antennas
66 Dedicated SOF Accommodations
Lockout Chamber (Tubes 1 & 2) and Reconfigurable SOF Stowage Tubes (Tubes 3-10)
Replace SWS Missile Fire Control with Tactical Fire Control Systems
Mod/Replace SWS Navigation Equipment, Add SOF Control Room and Mission Planning Center

OHIO class reconfiguration

6/2001, US Navy / 0122978

Combat data systems: DWS-118 and CCS Mk 2 Mod 3 with UYK 43/UYK 44 computers.
Weapons control: Mk 98 fire-control system.
Radars: Surface search/navigation/fire control: BPS 15A/H; I/J-band.
Sonars: IBM BQQ 6; passive search.
Raytheon BQS 13; spherical array for BQQ 6.
Ametek BQS 15; active/passive for close contacts; high frequency.
Western Electric BQR 15 (with BQQ 9 signal processor); passive towed array. TB 23 thin line array.
Raytheon BQR 19; active for navigation; high frequency.

Programmes: Following the 1994 nuclear posture review which recommended a 14-strong SSBN force, remaining four 'Ohio' class being converted to SSGN role. Conversion contract with General Dynamics Electric Boat in October 2002. *Ohio* and *Florida* started mid-life refuelling in 2002. Conversion work started in November 2003 and is to complete in 2007. *Michigan* and *Georgia* are to follow a year later.
Modernisation: Conversion to carry up to 154 Tomahawk or Tactical Tomahawk missiles by enabling seven cruise missiles to be fired from each of 22 of the current 24 Trident missile tubes. Eight of these tubes are likely to be interchangeable with Special Forces stowage canisters. The remaining two tubes will be permanently configured for wet/dry launch of SEALs. The combat system is also to be upgraded and future payloads are being developed to augment the baseline configuration.
Structure: The size of the submarine is dictated primarily by the 24 missile tubes and the larger reactor plant to drive the ship. The reactor has a nuclear core life of about 20 years between refuellings. Diving depth is 244 m *(800 ft)*. Kollmorgen Type 152 and Type 82 periscopes. Mk 19 Air Turbine Pump for torpedo discharge.
Operational: *Georgia* is to play the part of an SSGN during Exercise 'Silent Hammer' in mid-2004. This is to test, inter alia, procedures for strikes against time critical targets and special operations. A battle-centre onboard is to test the communications and networking required to support them.

UPDATED

Attack Submarines (SSN)

1 + 9 VIRGINIA CLASS (SSN)

Name	*No*	*Builders*	*Start date*	*Launched*	*Commissioned*
VIRGINIA	SSN 774	General Dynamics (Electric Boat)	30 Sep 1998	16 Aug 2003	July 2004
TEXAS	SSN 775	Northrop Grumman, Newport News Shipbuilding	7 Dec 1998	2005	2005
HAWAII	SSN 776	General Dynamics (Electric Boat)	13 Nov 2000	2006	2007
NORTH CAROLINA	SSN 777	Northrop Grumman, Newport News Shipbuilding	29 Jan 2002	2007	2008
—	SSN 778	General Dynamics (Electric Boat)	14 Aug 2003	2008	2009
—	SSN 779	Northrop Grumman, Newport News Shipbuilding	29 Jan 2004	2009	2010
—	SSN 780	General Dynamics (Electric Boat)	2005	2010	2011
—	SSN 781	Northrop Grumman, Newport News Shipbuilding	2006	2011	2012
—	SSN 782	General Dynamics (Electric Boat)	2007	2012	2013
—	SSN 783	Northrop Grumman, Newport News Shipbuilding	2008	2013	2014

Displacement, tons: 7,800 dived
Dimensions, feet (metres): 377 × 34 × 30.5 *(114.9 × 10.4 × 9.3)*
Main machinery: Nuclear; 1 GE PWR S9G; 2 turbines; 40,000 hp *(29.84 MW)*; 1 shaft; pump jet propulsor; 1 secondary propulsion submerged motor
Speed, knots: 34 dived
Complement: 134

Missiles: SLCM Tomahawk. ATMS possibly.
SSM: 12 VLS tubes for cruise missiles.
Torpedoes: 4—21 in *(533 mm)* tubes. Mk 48 ADCAP Mod 6; total of 38 weapons including SSM, torpedoes and UUVs.
Mines: Can lay Mk 67 Mobile and Mk 60 Captor mines (until new mines are available).

Countermeasures: Decoys: 14 external and 1 internal (reloadable). Anti-torpedo torpedo.
ESM: WLQ-4(V); BLQ-10; intercept.
Combat data systems: Lockheed Martin CCSM (Command and Control System Module) compatible with JMCIS.
Radars: Navigation: BPS 16; I-band.
Sonars: Bow spherical active/passive array; wide aperture flank passive arrays; high-frequency active keel and fin arrays; TB 16 and TB 29 towed arrays.

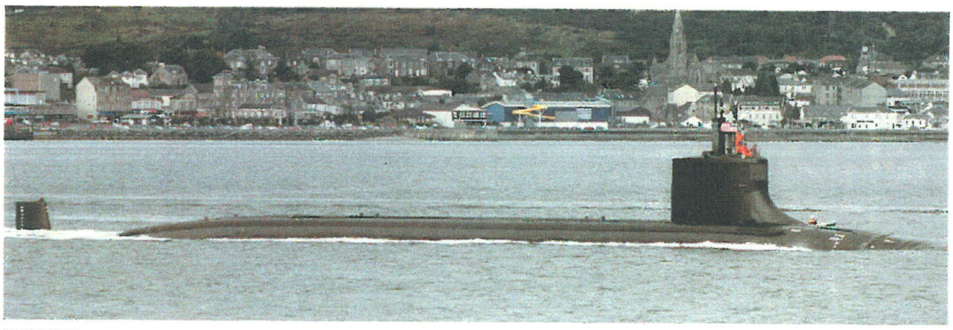
Programmes: In February 1997, a teaming agreement was reached between General Dynamics (Electric Boat) and Newport News to build the 'Virginia' class co-operatively. Electric Boat is the lead design yard, constructs engine room and command and control modules and seven other sections of each ship. It is also to perform final assembly, testing, outfitting, and delivery of the even-numbered hulls. Newport News constructs the sail, the habitability and auxiliary machinery room modules, and six other sections. It is to perform final assembly, testing, outfitting, and delivery of the odd-numbered hulls. Reactor compartments built by the delivery yard in each case. Advanced funding for first of class in FY96 and this continued in to FY98. Second of class funding in FY99, third in FY01 and fourth in FY02. Block-buy contract awarded on 29 January 2004 for construction of further five boats which allows one boat per year to be ordered from 2004 to 2006 and two boats in 2007. The contract also allows for construction of a sixth boat which was authorised in FY03. A total of 30 hulls was set by the 1997 Quadrennial Defense Review and a Batch 2 is expected to start at about hull ten of the programme. These are likely to be substantially different in design and payload.
Structure: Seawolf level quietening. Acoustic hull cladding. The reactor core will last the life of the ship. The integral nine-man lock out chamber can be used with the Advanced SEAL Delivery System mini submarine or a dry deck shelter, and the torpedo magazine can be adapted to provide 2,400 ft³ of space for up to 40 SEALs and equipment. Non-hull-penetrating mast with eight antenna packages depending on the role. Test depth 488 m *(1,600 ft)*. A scale version (0.294) *Cutthroat* LSV-2 is listed under Deep Submergence Vehicles.
Operational: To be capable of both deep ocean ASW and shallow water operations of all types. Advanced UUVs, wake detection equipment and a deployable bistatic source are all to be available.

UPDATED

VIRGINIA (at launch)
8/2003, Ships of the World* / 0572797

2 + 1 SEAWOLF CLASS (SSN)

Name	*No*	*Builders*	*Start date*	*Launched*	*Commissioned*	*F/S*
SEAWOLF	SSN 21	General Dynamics (Electric Boat)	25 Oct 1989	24 June 1995	19 July 1997	AA
CONNECTICUT	SSN 22	General Dynamics (Electric Boat)	14 Sep 1992	1 Sep 1997	11 Dec 1998	AA
JIMMY CARTER	SSN 23	General Dynamics (Electric Boat)	12 Dec 1995	June 2004	Jan 2005	Bldg



SEAWOLF

8/2001, H M Steele / 0131329

Displacement, tons: 8,060 surfaced; 9,142; 12,139 (SSN 23) dived

Dimensions, feet (metres): 353; 453.2 (SSN 23) × 42.3 × 35.8 *(107.6; 138.1 × 12.9 × 10.9)* (see *Modernisation*)

Main machinery: Nuclear; 1 Westinghouse PWR S6W; 2 turbines; 45,000 hp *(33.57 MW)*; 1 shaft; pumpjet propulsor; 1 Westinghouse secondary propulsion submerged motor

Speed, knots: 39 dived

Complement: 134 (14 officers)

Missiles: SLCM: Hughes Tomahawk (TLAM-N); land attack; Tercom Aided Inertial Navigation System (TAINS) to 2,500 km *(1,400 n miles)* at 0.7 Mach; altitude 15-100 m; nuclear warhead 200 kT; CEP 80 m. There are also 2 versions (TLAM-C/D) with either a single 454 kg HE warhead or a single warhead with submunitions; range 900 km *(485 n miles)*; CEP 10 m.

Nuclear warheads are not normally carried. Block III missiles increase TLAM-C range to 1,700 km *(918 n miles)*, add GPS back-up to TAINS and substitute a 318 kg shaped charge warhead.

Torpedoes: 8—26 in *(660 mm)* tubes (external measurement is 30 in *(762 mm)*); Gould Mk 48 ADCAP; wire-guided (option); active/passive homing to 50 km *(27 n miles)*/38 km *(21 n miles)* at 40/55 kt; warhead 267 kg; depth to 900 m *(2,950 ft)*. Air turbine discharge. Total of 50 tube-launched missiles and torpedoes, and UUVs in due course.

Mines: 100 in lieu of torpedoes.

Countermeasures: Decoys: torpedo decoys. WLY-1 system in due course.

ESM: WLQ-4(V)1; BLD-1; intercept.

Combat data systems: General Electric BSY-2 system. USC-38 EHF. JMCIS.

Weapons control: Raytheon Mk 2 FCS

Radars: Navigation: BPS 16; I-band.

Sonars: BSY-2 suite with bow spherical active/passive array and wide aperture passive flank arrays; TB 16 and TB 29 surveillance and tactical towed arrays.

Programmes: First of class ordered on 9 January 1989; second of class on 3 May 1991 and third on 30 April 1996. Design changes to *Carter* contracted in late 1999 delayed the launch by four years but construction was 85 per cent complete by January 2003.

Modernisation: The hull of SSN 23 is about 30 m longer to accommodate an Ocean Interface section with larger payload apertures to the sea. Modular architecture allows configuration for specific missions. Payloads could include standoff vehicles, distributed sensors and leave-behind weapons that would be activated after the submarine has left the area. It also supports Special Operations Forces including Dry Deck Shelter (DDS) and the Advanced SEAL Delivery System (ASDS). *Carter* retains all of the 'Seawolf' class's original war-fighting capability.

Structure: The modular design has more weapons, a higher tactical speed, better sonars and an ASW mission effectiveness 'three times better than the improved 'Los Angeles' class' according to the Navy. It is estimated that over a billion dollars has been allocated for research and development including the S6W reactor system. Full acoustic cladding fitted. Panels around wide aperture sonar array and torpedo tube doors were redesigned and refitted following sea-trials of SSN 21. Mk 21 Air turbine torpedo discharge pump. There are no external weapons. Emphasis has been put on sub-ice capabilities including retractable bow planes. Test depth 1,950 ft *(594 m)*.

Operational: A quoted 'silent' speed of 20 kt. Other operational advantages include greater manoeuvrability and space for subsequent weapon systems development.

Opinion: This submarine was intended to restore the level of acoustic advantage (in the one to one nuclear submarine engagement against the Russians) which the USN had enjoyed for three decades. At the same time the larger capacity of the magazine enhances overall effectiveness in a number of other roles. The decision to discontinue building this very expensive design was the result of falling defence budgets at the end of the Cold War and technical problems.

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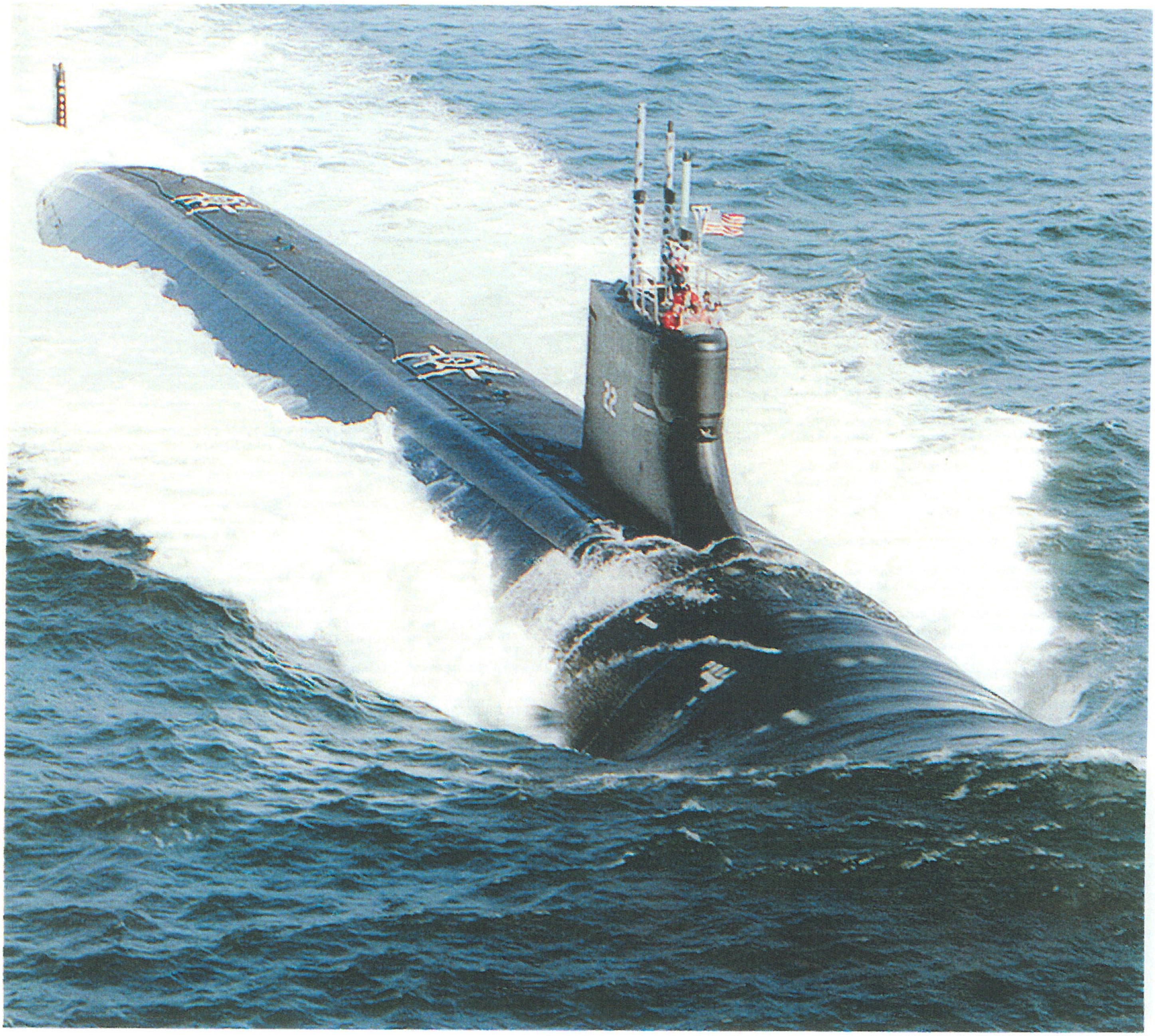


CONNECTICUT

6/1998, Electric Boat / 0044058

51 LOS ANGELES CLASS (SSN)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*
LOS ANGELES	SSN 688	Newport News Shipbuilding	8 Jan 1972	6 Apr 1974	13 Nov 1976	PA
PHILADELPHIA	SSN 690	General Dynamics (Electric Boat Div)	12 Aug 1972	19 Oct 1974	25 June 1977	AA
MEMPHIS	SSN 691	Newport News Shipbuilding	23 June 1973	3 Apr 1976	17 Dec 1977	AA
BREMERTON	SSN 698	General Dynamics (Electric Boat Div)	8 May 1976	22 July 1978	28 Mar 1981	PA
JACKSONVILLE	SSN 699	General Dynamics (Electric Boat Div)	21 Feb 1976	18 Nov 1978	16 May 1981	AA
DALLAS	SSN 700	General Dynamics (Electric Boat Div)	9 Oct 1976	28 Apr 1979	18 July 1981	AA
LA JOLLA	SSN 701	General Dynamics (Electric Boat Div)	16 Oct 1976	11 Aug 1979	24 Oct 1981	PA
CITY OF CORPUS CHRISTI	SSN 705	General Dynamics (Electric Boat Div)	4 Sep 1979	25 Apr 1981	8 Jan 1983	AA
ALBUQUERQUE	SSN 706	General Dynamics (Electric Boat Div)	27 Dec 1979	13 Mar 1982	21 May 1983	AA
PORTSMOUTH	SSN 707	General Dynamics (Electric Boat Div)	8 May 1980	18 Sep 1982	1 Oct 1983	PA
MINNEAPOLIS-SAINT PAUL	SSN 708	General Dynamics (Electric Boat Div)	30 Jan 1981	19 Mar 1983	10 Mar 1984	AA
HYMAN G RICKOVER	SSN 709	General Dynamics (Electric Boat Div)	24 July 1981	27 Aug 1983	21 July 1984	AA
AUGUSTA	SSN 710	General Dynamics (Electric Boat Div)	1 Apr 1982	21 Jan 1984	19 Jan 1985	AA
SAN FRANCISCO	SSN 711	Newport News Shipbuilding	26 May 1977	27 Oct 1979	24 Apr 1981	PA
HOUSTON	SSN 713	Newport News Shipbuilding	29 Jan 1979	21 Mar 1981	25 Sep 1982	PA
NORFOLK	SSN 714	Newport News Shipbuilding	1 Aug 1979	31 Oct 1981	21 May 1983	AA
BUFFALO	SSN 715	Newport News Shipbuilding	25 Jan 1980	8 May 1982	5 Nov 1983	PA
SALT LAKE CITY	SSN 716	Newport News Shipbuilding	26 Aug 1980	16 Oct 1982	12 May 1984	PA
OLYMPIA	SSN 717	Newport News Shipbuilding	31 Mar 1981	30 Apr 1983	17 Nov 1983	PA
HONOLULU	SSN 718	Newport News Shipbuilding	10 Nov 1981	24 Sep 1983	6 July 1985	PA
PROVIDENCE	SSN 719	General Dynamics (Electric Boat Div)	14 Oct 1982	4 Aug 1984	27 July 1985	AA
PITTSBURGH	SSN 720	General Dynamics (Electric Boat Div)	15 Apr 1983	8 Dec 1984	23 Nov 1985	AA
CHICAGO	SSN 721	Newport News Shipbuilding	5 Jan 1983	13 Oct 1984	27 Sep 1986	PA
KEY WEST	SSN 722	Newport News Shipbuilding	6 July 1983	20 July 1985	12 Sep 1987	PA
OKLAHOMA CITY	SSN 723	Newport News Shipbuilding	4 Jan 1984	2 Nov 1985	9 July 1988	AA
LOUISVILLE	SSN 724	General Dynamics (Electric Boat Div)	16 Sep 1984	14 Dec 1985	8 Nov 1986	PA
HELENA	SSN 725	General Dynamics (Electric Boat Div)	28 Mar 1985	28 June 1986	11 July 1987	PA
NEWPORT NEWS	SSN 750	Newport News Shipbuilding	3 Mar 1984	15 Mar 1986	3 June 1989	AA
SAN JUAN	SSN 751	General Dynamics (Electric Boat Div)	16 Aug 1985	6 Dec 1986	6 Aug 1988	AA
PASADENA	SSN 752	General Dynamics (Electric Boat Div)	20 Dec 1985	12 Sep 1987	11 Feb 1989	PA
ALBANY	SSN 753	Newport News Shipbuilding	22 Apr 1985	13 June 1987	7 Apr 1990	AA
TOPEKA	SSN 754	General Dynamics (Electric Boat Div)	13 May 1986	23 Jan 1988	21 Oct 1989	PA
MIAMI	SSN 755	General Dynamics (Electric Boat Div)	24 Oct 1986	12 Nov 1988	30 June 1990	AA
SCRANTON	SSN 756	Newport News Shipbuilding	29 June 1986	3 July 1989	26 Jan 1991	AA
ALEXANDRIA	SSN 757	General Dynamics (Electric Boat Div)	19 June 1987	23 June 1990	29 June 1991	AA
ASHEVILLE	SSN 758	Newport News Shipbuilding	1 Jan 1987	28 Oct 1989	28 Sep 1991	PA
JEFFERSON CITY	SSN 759	Newport News Shipbuilding	21 Sep 1987	24 Mar 1990	29 Feb 1992	PA
ANNAPOLIS	SSN 760	General Dynamics (Electric Boat Div)	15 June 1988	18 May 1991	11 Apr 1992	AA
SPRINGFIELD	SSN 761	General Dynamics (Electric Boat Div)	29 Jan 1990	4 Jan 1992	9 Jan 1993	AA
COLUMBUS	SSN 762	General Dynamics (Electric Boat Div)	7 Jan 1991	1 Aug 1992	24 July 1993	PA
SANTA FE	SSN 763	General Dynamics (Electric Boat Div)	9 July 1991	12 Dec 1992	8 Jan 1994	PA
BOISE	SSN 764	Newport News Shipbuilding	25 Aug 1988	20 Oct 1990	7 Nov 1992	AA
MONTPELIER	SSN 765	Newport News Shipbuilding	19 May 1989	6 Apr 1991	13 Mar 1993	AA
CHARLOTTE	SSN 766	Newport News Shipbuilding	17 Aug 1990	3 Oct 1992	16 Sep 1994	PA
HAMPTON	SSN 767	Newport News Shipbuilding	2 Mar 1990	28 Sep 1991	6 Nov 1993	AA
HARTFORD	SSN 768	General Dynamics (Electric Boat Div)	27 Apr 1992	4 Dec 1993	10 Dec 1994	AA
TOLEDO	SSN 769	Newport News Shipbuilding	6 May 1991	28 Aug 1993	24 Feb 1995	AA
TUCSON	SSN 770	Newport News Shipbuilding	15 Aug 1991	19 Mar 1994	9 Sep 1995	PA
COLUMBIA	SSN 771	General Dynamics (Electric Boat Div)	24 Apr 1993	24 Sep 1994	9 Oct 1995	PA
GREENEVILLE	SSN 772	Newport News Shipbuilding	28 Feb 1992	17 Sep 1994	16 Feb 1996	PA
CHEYENNE	SSN 773	Newport News Shipbuilding	6 July 1992	4 Apr 1995	13 Sep 1996	PA

Displacement, tons: 6,082 standard; 6,927 dived
Dimensions, feet (metres): 362 × 33 × 32.3 *(110.3 × 10.1 × 9.9)*
Main machinery: Nuclear; 1 GE PWR S6G; 2 turbines; 35,000 hp *(26 MW)*; 1 shaft; 1 Magnetek auxiliary prop motor; 325 hp *(242 kW)*
Speed, knots: 32 dived
Complement: 133 (13 officers)

Missiles: SLCM: GDC/Hughes Tomahawk (TLAM-N); land attack; Tercom aided inertial navigation system (TAINS) to 2,500 km *(1,400 n miles)* at 0.7 Mach; altitude 15-100 m; nuclear warhead 200 kT; CEP 80 m. There are also 2 versions (TLAM-C/D) with either a single 454 kg HE warhead or a single warhead with submunitions; range 900 km *(485 n miles)*; CEP 10 m. Nuclear warheads are not normally carried. Block III missiles, installed from 1994, increase TLAM-C range to 1,700 km *(918 n miles)*, add GPS back-up to TAINS and substitute a 318 kg shaped charge warhead.

From SSN 719 onwards all are equipped with the Vertical Launch System, which places 12 launch tubes external to the pressure hull behind the BQQ 5 spherical array forward.

Torpedoes: 4—21 in *(533 mm)* tubes midships. Gould Mk 48; ADCAP Mod 5/6; wire-guided (option); active/passive homing to 50 km *(27 n miles)*/38 km *(21 n miles)* at 40/55 kt; warhead 267 kg; depth to 900 m *(2,950 ft)*. Air Turbine Pump discharge.

Total of 26 weapons can be tube-launched, for example-12 Tomahawk, 14 torpedoes.

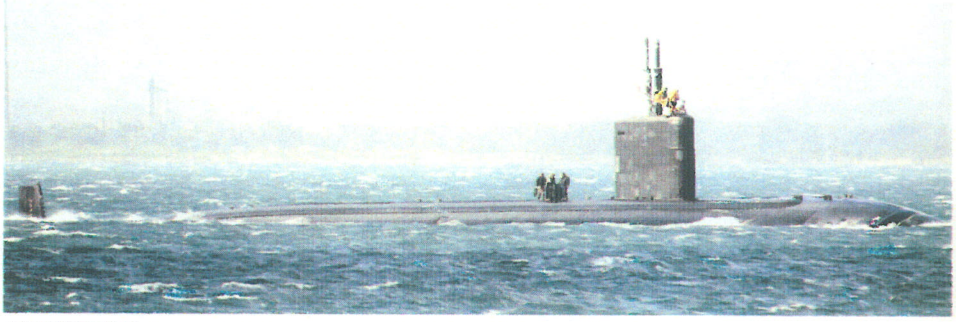
Mines: Can lay Mk 67 Mobile and Mk 60 Captor mines.

Countermeasures: Decoys: Emerson Electric Mk 2; torpedo decoy.

ESM: BRD-7; direction finding. WLR-1H (in 771-773). WLR-8(V)2/6; intercept. WSQ-5 (periscope) and WLR-10; radar warning. BLQ-10 being fitted in some.

Combat data systems: CCS Mk 2 (688-750) with UYK 7 computers; IBM BSY-1 (751-773) with UYK 43/UYK 44 computers. JOTS, BGIXS and TADIX-A can be fitted. USC-38 EHF (in some). Link 11; Link 16 being fitted.

Radars: Surface search/navigation/fire control: Sperry BPS 15 H/16; I/J-band.



JEFFERSON CITY *6/2002, Royal Australian Navy* / 0530095

Sonars: IBM BQQ 5D/E; passive/active search and attack; low frequency. BSY-1 (SSN 751 onwards)

BQG 5D wide aperture flank array (SSN 710 and SSN 773).

TB 23/29 thin line array and TB 16; passive towed array.

Ametek BQS 15; active close range including ice detection; high frequency.

MIDAS (mine and ice detection avoidance system) (SSN 751 onwards); active high frequency.

Programmes: Various major improvement programmes and updating design changes caused programme delays in the late 1980s. From SSN 751 onwards the class is prefixed by an 'I' for 'improved'. Programme terminated at 62 hulls. Eleven paid off by mid-1999. Plans to refuel the majority of the class have delayed further de-activations but these will start again with the decommissioning of SSN 716 in FY07.

Modernisation: Mk 117 TFCS backfitted in earlier submarines of the class. EHF communications and Link 16 are being fitted. Prototype HDR antenna fitted in SSN 719. Production versions being installed from 2002. BQQ 10 and TB 29 fitted in all. An ARCI (Acoustic Rapid COTS Insertion) AN/BQQ-10 programme from 1997 to 2002 to backfit BQQ 5 sonars with open system architecture. Five of the class are fitted with DDS (SSN 688, 690, 700, 701 and 715). Two others are fitted to operate ASDS (SSN 772, 766). C-303 acoustic jammer in one of the class for trials in 1998. 25 mm guns may be fitted in the future.

Structure: Every effort has been made to improve sound quieting and from SSN 751 onwards the class has acoustic tile cladding to augment the 'mammalian' skin which up to then had been the standard USN outer casing coating. Also from SSN 751 the forward hydro planes are fitted forward instead of on the fin. The planes are retractable mainly for surfacing through ice. The S6G reactor is a modified version of the D2G type. The towed sonar array is stowed in a blister on the side of the casing. A single refuelling is required during the life of the boat. Diving depth is 450 m *(1,475 ft)*. *Memphis* was withdrawn from active service in late 1989 to become an interim research platform for advanced submarine technology. Early trials did not involve major changes to the submarine but tests started in September 1990 for optronic non-hull-penetrating masts and a major overhaul included installation of a large diameter tube for testing UUVs and large torpedoes. An after casing hangar is fitted for housing larger UUVs and towed arrays. Many other ideas are being evaluated with the main aim of allowing contractors easy access for trials at sea of new equipment. *Augusta* was the trials platform for the BQQ-5D wide aperture array passive sonar system. Various staged design improvements have added some 220 tons to the class displacement between 688 and 773.

Operational: The 'Los Angeles' class is the mainstay of the attack submarine force. The land-attack mission has been a notable feature of operations in Iraq, Kosovo and Afghanistan (SSN 719). Under-ice operations are still a priority and SSN 756 surfaced at the North Pole in mid-2001. Special forces and intelligence gathering missions are also conducted. Normally twelve Tomahawk missiles are carried internally (in addition to the external tubes in 719 onwards) but this load can be increased depending on the mission. Neither TASM nor Harpoon are now deployed. Subroc phased out in 1990. Nuclear weapons disembarked but still available. Predator and Sea Ferret UAV trials done in two of the class in 1996-97 and may become available for launching from a sub-Harpoon canister in due course. ASDS trials in SSN 772 during 2002.

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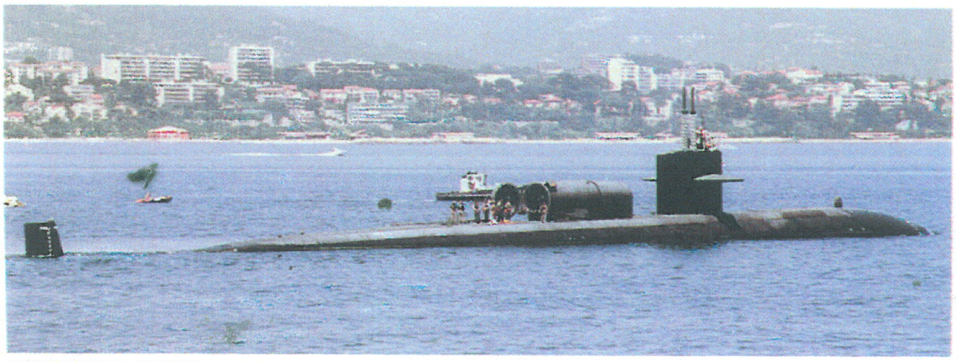
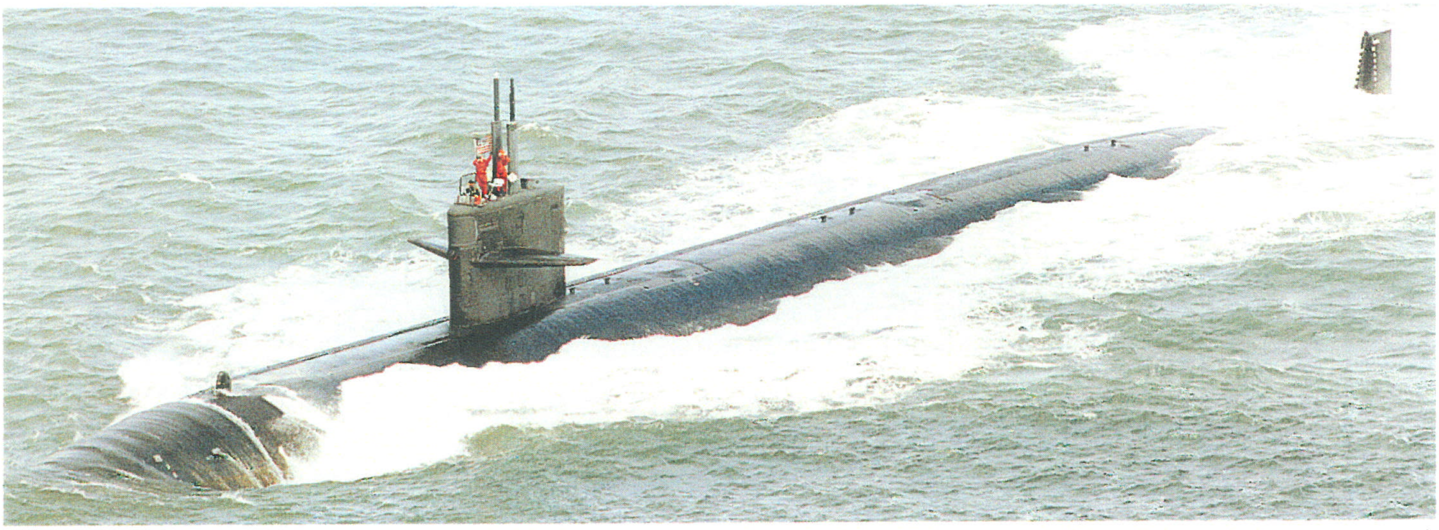


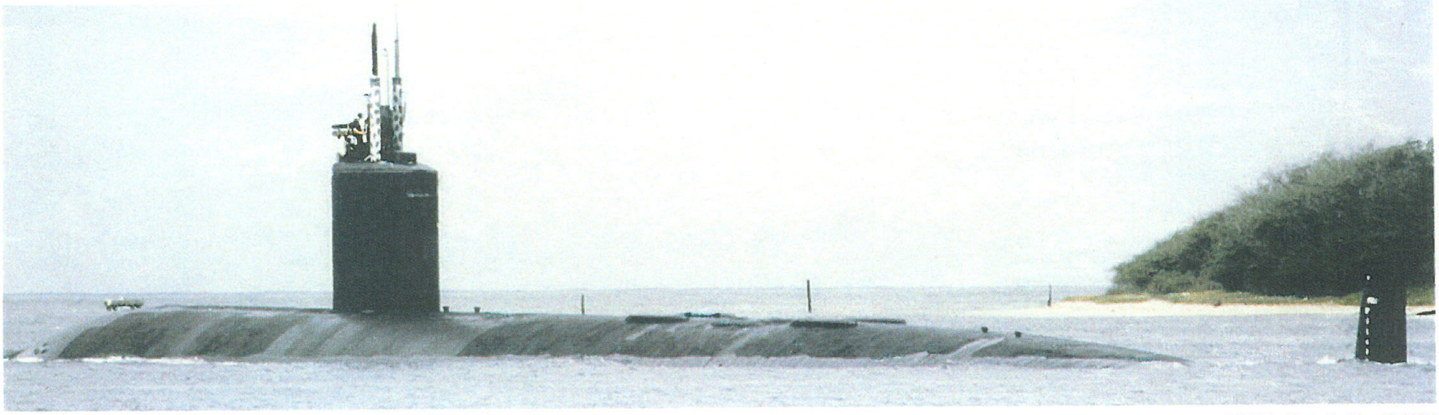
PHILADELPHIA (with DDS) *5/2001, H M Steele* / 0131330

CHEYENNE *12/2002*, D Yates, RAN* / 0572800



KEY WEST *10/2000, Michael Nitz* / 0106745

LA JOLLA (with DSRV-1) *4/2002, Hachiro Nakai* / 0530031



GREENEVILLE *7/2002, Chris Sattler* / 0529958

AIRCRAFT CARRIERS

Notes: The CVN 21 (formerly CVN(X)) programme is the next generation of aircraft carrier. Construction of the lead ship (CVN 78) is to begin at Newport News Shipbuilding in 2007 for delivery in 2014. Features of the new design include: a new nuclear propulsion plant, a new electrical distribution system, an Electromagnetic Aircraft Launch System and Advanced Arresting Gear, a phased-array radar, an expanded flight deck and integrated mission system complexes. Electrical generating capacity is to be 2½ times that of the 'Nimitz' class to support future warfighting technologies. CVN 21 will require 500 fewer crewmen than the 'Nimitz' class. The displacement is to be of the order of 100,000 tons. Construction of the second of the class ship (CVN 79) is to begin in 2011 with further ships to follow at five year intervals.

2 KITTY HAWK and JOHN F KENNEDY CLASSES (CVM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*
KITTY HAWK	CV 63	New York Shipbuilding	27 Dec 1956	21 May 1960	29 Apr 1961	PA
JOHN F KENNEDY	CV 67	Newport News Shipbuilding	22 Oct 1964	27 May 1967	7 Sep 1968	AA

Displacement, tons: 83,960 full load; 81,430 full load (CV 67)
Dimensions, feet (metres): 1,062.5 (CV 63); 1,072.5 (CV 64); 1,052 (CV 67) × 130 × 37.4 *(323.6; 326.9; 320.6 × 39.6 × 11.4)*
Flight deck, feet (metres): 1,046 × 252 *(318.8 × 76.8)*
Main machinery: 8 Foster-Wheeler boilers; 1,200 psi *(83.4 kg/cm²)*; 950°F *(510°C)*; 4 Westinghouse turbines; 280,000 hp *(209 MW)*; 4 shafts
Speed, knots: 32
Range, miles: 4,000 at 30 kt; 12,000 at 20 kt
Complement: 2,930 (155 officers); aircrew 2,480 (320 officers); Flag 70 (25 officers)

Missiles: SAM: 2 Raytheon GMLS Mk 29 octuple launchers ❶; NATO Sea Sparrow; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg. ESSM in due course.
2 GDC Mk 49 RAM ❷; 21 rds/launcher; passive IR/anti-radiation homing to 9.6 km *(5.2 n miles)* at 2 Mach; warhead 9.1 kg.
Guns: 2 General Electric/General Dynamics 20 mm Vulcan Phalanx 6-barrelled Mk 15 ❸; 3,000 rds/min (or 4,500 in Block 1) combined to 1.5 km. Two mountings to be replaced by RAM in CV 63 and CV 67.
Countermeasures: Decoys: SLQ-25 Nixie.
ESM/ECM: SLQ-32(V)4 intercept and jammers.
Combat data systems: ACDS Block 0 (Block 1 Level 1 in CV 67) naval tactical and advanced combat direction systems Links 4A, 11, 14 and 16. GCCS (M) SATCOMS: SSQ-82, SRR-1, WSC-3 (UHF), WSC-6 (SHF), USC-38 (EHF) (see Data Systems at front of section). SSDS Mk 2 Mod 1 (CV 67 in due course).
Weapons control: 2 Mk 91 MFCS directors (part of NSSMS Mk 57 SAM system).
Radars: Air search: ITT SPS-48E ❹; 3D; E/F-band.
Raytheon SPS-49(V)5 ❺; C/D-band.
Hughes Mk 23 TAS ❻; D-band. SPQ-9B with SSDS in due course.
Surface search: Norden SPS-67; G-band.
CCA: SPN-41, SPN-43A; 2 SPN-46; J/K/F-band.
Navigation: Raytheon SPS 73(V17); Furuno 900; I-band.
Fire control: 4 Mk 95; I/J-band (for SAM).
Tacan: URN 25.

Fixed-wing aircraft: Composition of air-wing depends on mission and includes: 10-12 F-14B Tomcat (or F/A-18F Hornet); 36 F/A-18A/C/E Hornet; 4 EA-6B Prowler; 4 E-2C Hawkeye; up to 6 S-3B Viking.
Helicopters: 4 SH-60F and 2 HH-60H Seahawk.

Programmes: *Kitty Hawk* was authorised in FY56 and *John F Kennedy* in FY63.
Modernisation: Service Life Extension Programme (SLEP): *Kitty Hawk* completed in February 1991. A 'complex overhaul' of *Kennedy* completed in September 1995. ACDS Block 1 trials done in *Kennedy* in 1998. SSDS Mk 2 Mod 1 to be fitted in CV 67 in due course including SPQ-9B radar. *Kennedy* battle group conducted successful CEC operational evaluation in 2001. *Kennedy* completed nine month maintenance period at Mayport, FL, in November 2003.
Structure: These ships were built to an improved Forrestal design. They have two deck-edge lifts forward of the superstructure, a third lift aft of the structure, and the port-side lift on the after quarter. Four C13 steam catapults (with one C13-1 in *Kennedy*) and four arrester wires. Aviation fuel of 5,882 tons carried.
Operational: *Kitty Hawk* based in Yokosuka from July 1998 and expected to remain in service until 2008 when it will be replaced in the force structure by CVN 77. *John F Kennedy* to pay off in 2018 when replaced by CVN 79. Air wings are changed depending on the operational role. CV 63 used as Special Forces base during operations off Afghanistan in 2001.

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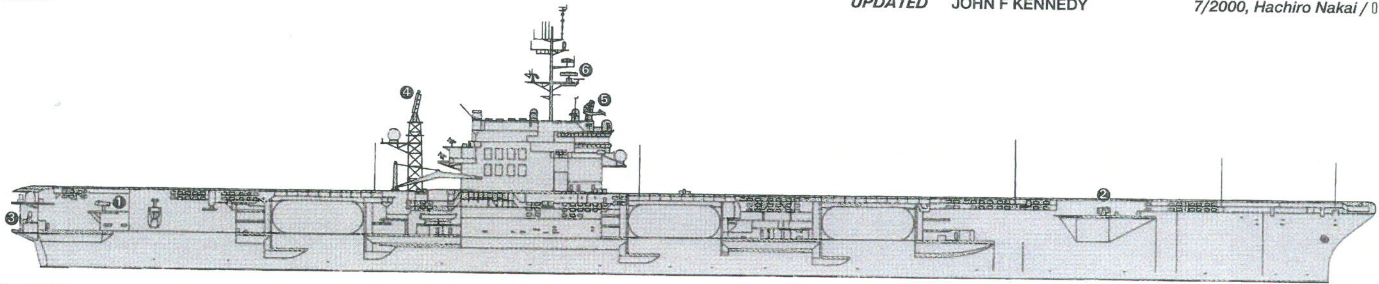
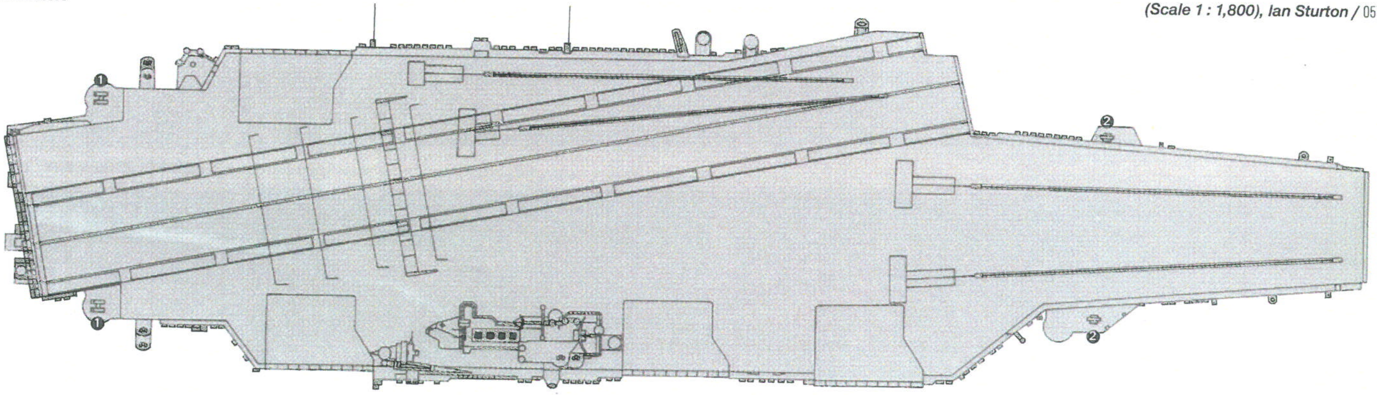
JOHN F KENNEDY *7/2000, Hachiro Nakai* / 0106751

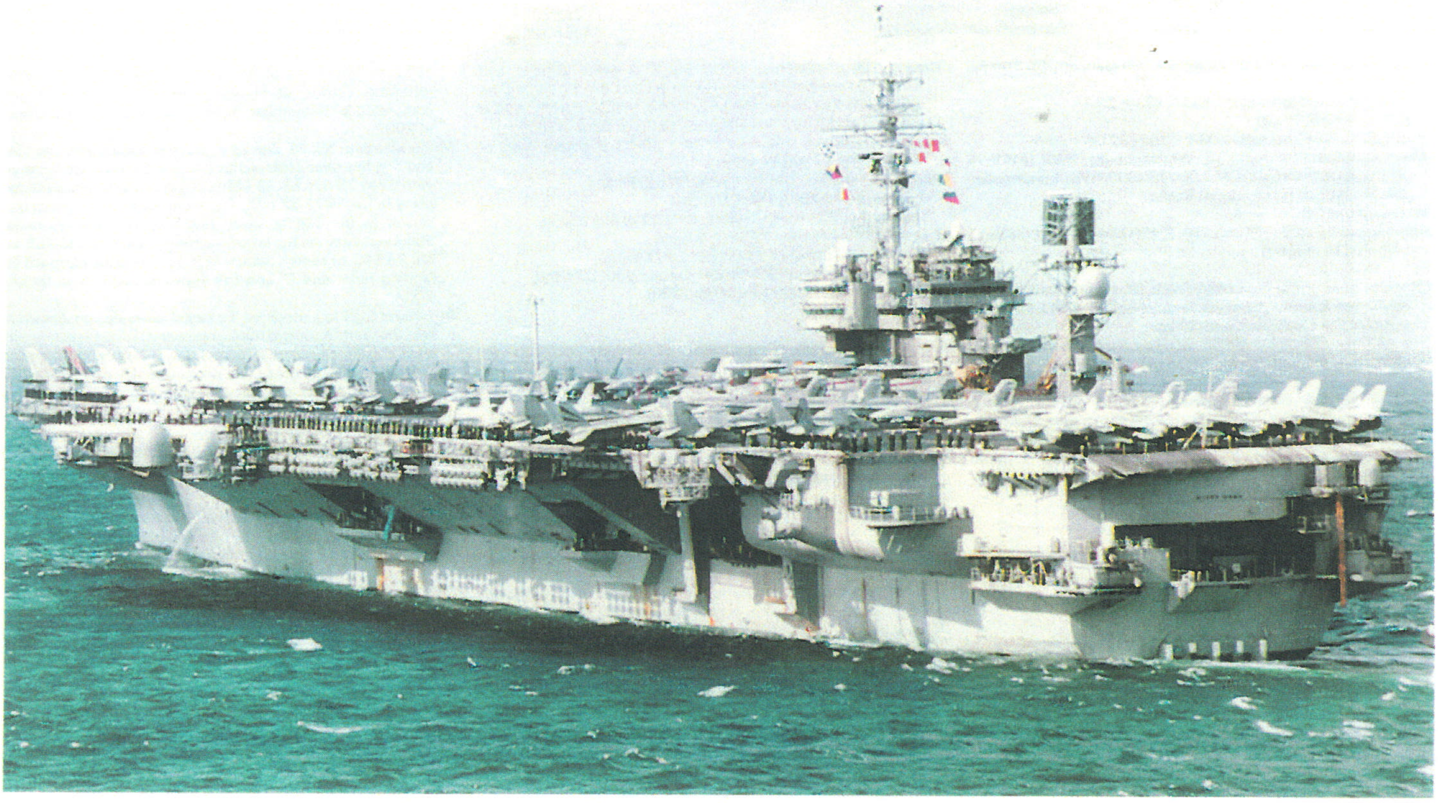


KITTY HAWK *(Scale 1 : 1,800), Ian Sturton* / 0573701

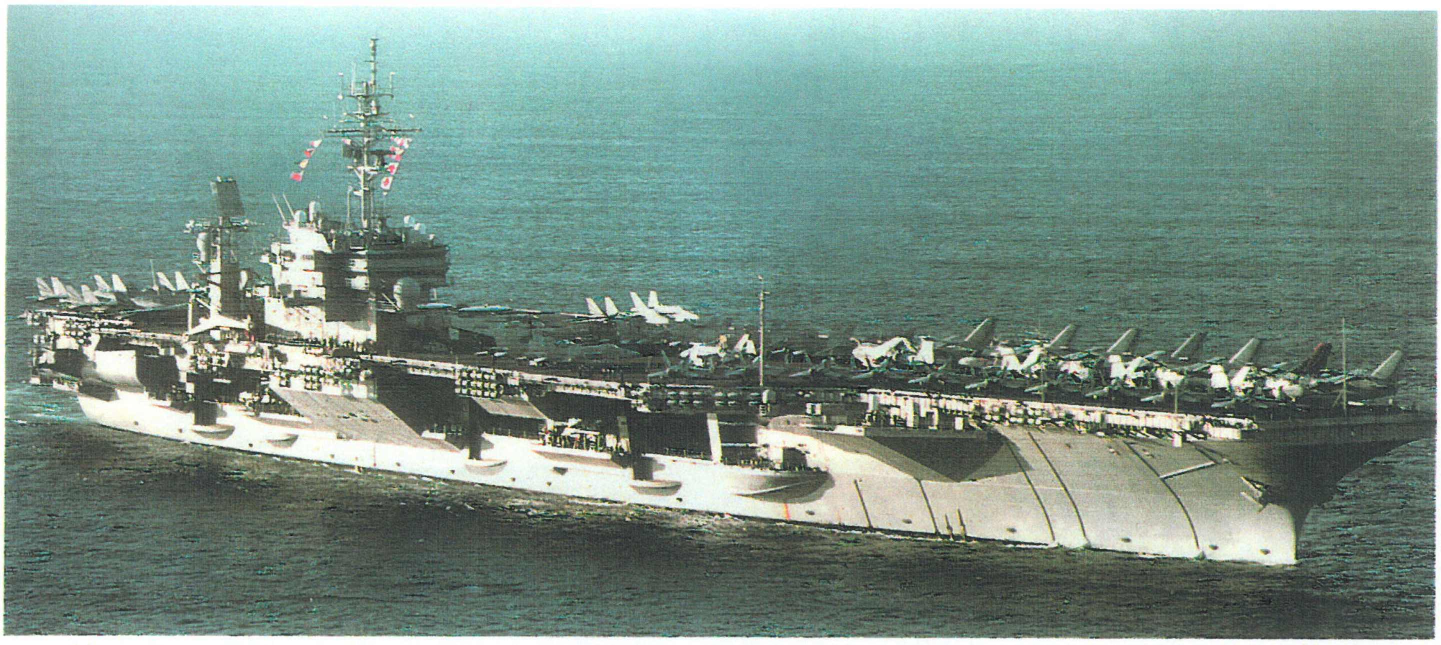


KITTY HAWK *(Scale 1 : 1,800), Ian Sturton* / 0573700

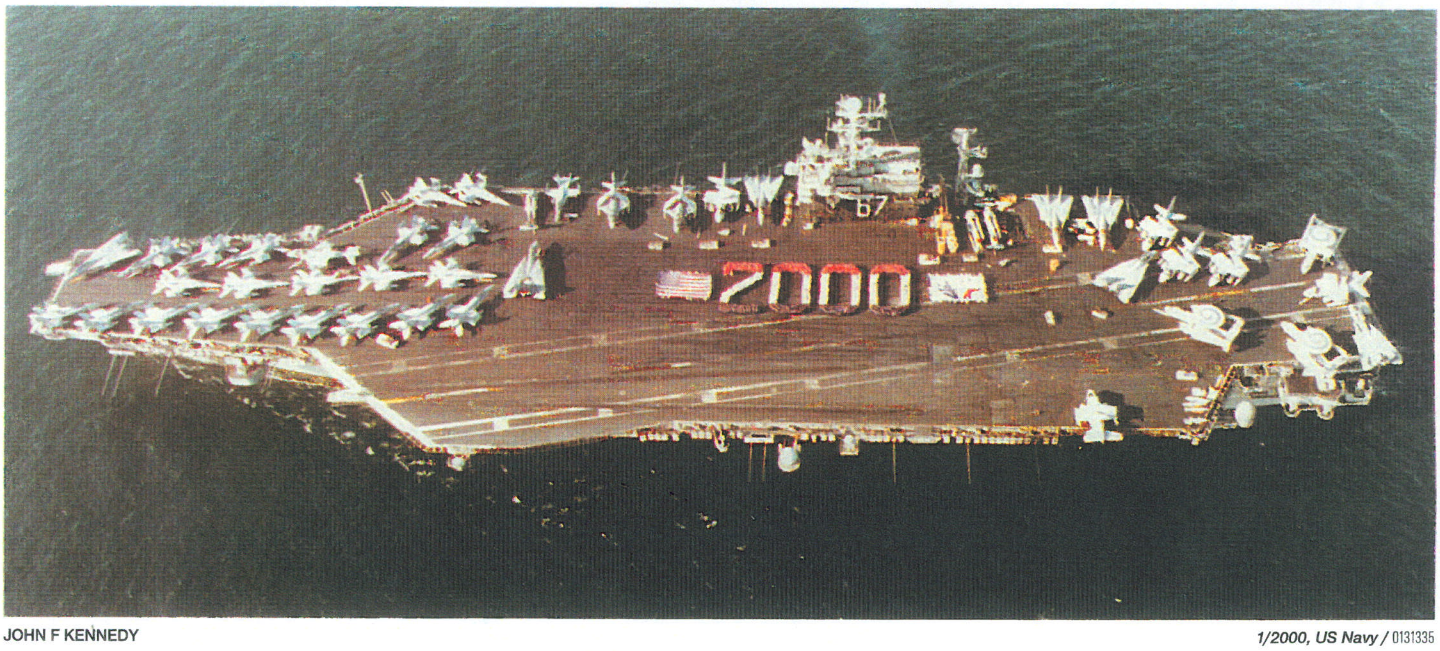
KITTY HAWK *11/2002*, Ships of the World* / 0572770



KITTY HAWK *10/2001, Chris Sattler* / 0131263



KITTY HAWK *5/2001, Sattler/Steele* / 0131324



JOHN F KENNEDY *1/2000, US Navy* / 0131335

1 ENTERPRISE CLASS (CVNM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*
ENTERPRISE	CVN 65	Newport News Shipbuilding	4 Feb 1958	24 Sep 1960	25 Nov 1961	AA

Displacement, tons: 73,502 light; 75,700 standard; 89,600 full load

Dimensions, feet (metres): 1,123 × 133 × 39 *(342.3 × 40.5 × 11.9)*

Flight deck, feet (metres): 1,088 × 252 *(331.6 × 76.8)*

Main machinery: Nuclear; 8 Westinghouse PWR A2W; 4 Westinghouse turbines; 280,000 hp *(209 MW)*; 4 emergency diesels; 10,720 hp *(8 MW)*; 4 shafts

Speed, knots: 33

Complement: 3,350 (171 officers); 2,480 aircrew (358 officers); Flag 70 (25 officers)

Missiles: SAM: 2 Raytheon GMLS Mk 29 octuple launchers ❶; NATO Sea Sparrow; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg.

2 GDC Mk 49 RAM ❷; 21 rds/launcher; passive IR/anit-radiation homing to 9.6 km *(5.2 n miles)* at 2 Mach; warhead 9.1 kg.

Guns: 2 General Electric/General Dynamics 20 mm Vulcan Phalanx 6-barrelled Mk 15 ❸; 3,000 rds/min (or 4,500 in Block 1) combined to 1.5 km.

Countermeasures: Decoys: SSTDS (Surface Ship Torpedo Defence System). SLQ-25 Nixie.

ESM/ECM: SLQ-32(V)4; intercept and jammers.

Combat data systems: ACDS Block 0 naval tactical and advanced combat direction systems; Links 4A, 11, 14 and 16. GCCS (M) SATCOMS: SSQ-82, SRR-1, WSC-3 (UHF), WSC-6 (SHF), USC-38 (EHF) (see Data Systems at front of section).

Weapons control: 2 Mk 91 Mod 1 MFCS directors (part of NSSMS Mk 57 SAM system).

Radars: Air search: ITT SPS-48E ❹; 3D; E/F-band.
Raytheon SPS-49(V)5 ❺; C/D-band.
Hughes Mk 23 TAS ❻; D-band. SPQ-9B in due course.
Surface search: Norden SPS-67; G-band.
CCA: SPN-41, SPN-43C; 2 SPN-46; J/F/K-band.
Navigation: Raytheon SPS-64(V)9; Furuno 900; I/J-band.
Fire control: 4 Mk 95; I/J-band (for SAM).
Tacan: URN 25.

Fixed-wing aircraft: Composition of air-wing depends on mission and includes: 10-12 F-14B/D Tomcat (or F/A-18F Hornet); 36 F/A-18A/C/E Hornet; 4 EA-6B Prowler; 4 E-2C Hawkeye; up to 6 S-3B Viking.

Helicopters: 4 SH-60F and 2 HH-60H Seahawk.

Programmes: Authorised in FY58. Underwent a refit/overhaul at Puget Sound Naval SY, Bremerton, Washington from January 1979 to March 1982. Latest complex overhaul including refuelling started at Newport News in early 1991 and completed 27 September 1994. Minor refit in 1997 and again in 2002.

Modernisation: Mk 25 Sea Sparrow was installed in late 1967 and this has been replaced by two Mk 29 and supplemented with three 20 mm Mk 15 CIWS. A reshaping of the island took place in her 1979-82 refit. This included a replacement mast similar to the 'Nimitz' class with SPS-48C and 49 radars. Improvements during latest overhaul included SPS-48E and Mk 23 TAS air search radars, SPN-46 precision approach and landing radar and C^3 and EW systems. RAM to be fitted in 2004.

Structure: Built to a modified 'Forrestal' class design. *Enterprise* was the world's second nuclear-powered surface warship (the cruiser *Long Beach* was completed a few months earlier). Aviation facilities include four deck edge lifts, two forward and one each side abaft the island. There are four 295 ft C 13 Mod 1 catapults. Hangars cover 216,000 sq ft with 25 ft deck head. Aviation fuel, 8,500 tons.

Operational: 12 days' aviation fuel for intensive flying. Air wing depends on the operational role. Expected to remain in service until 2013.

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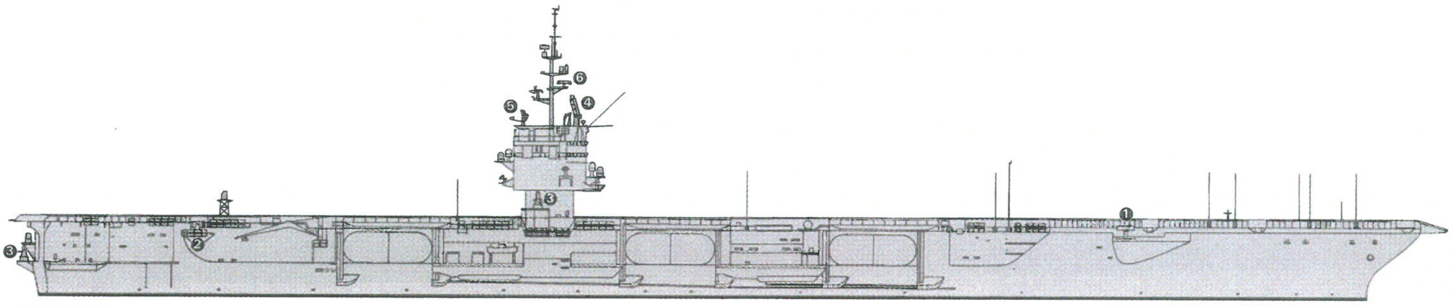
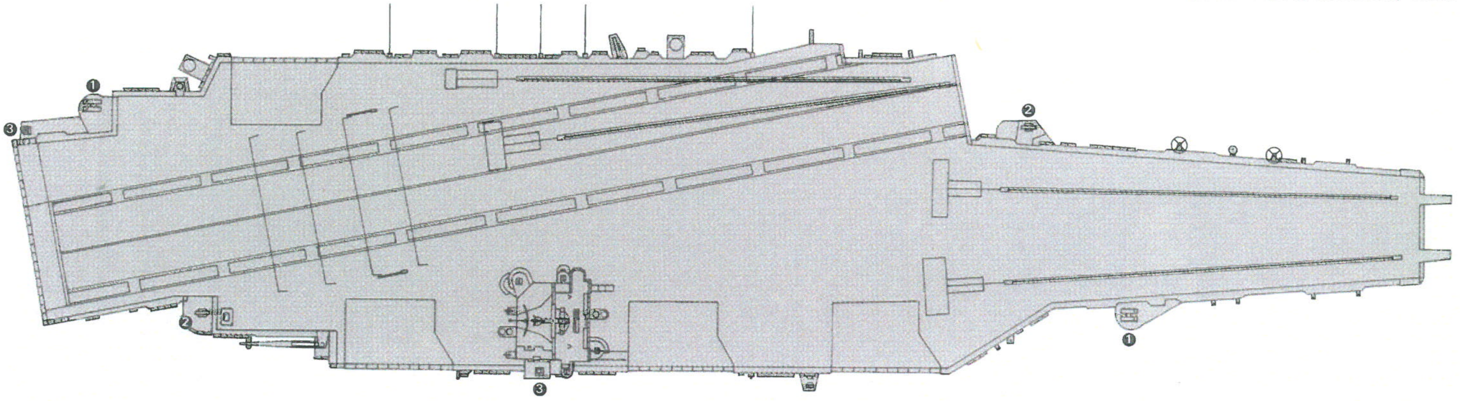


ENTERPRISE

(Scale 1 : 1,800), Ian Sturton / 0573702



ENTERPRISE

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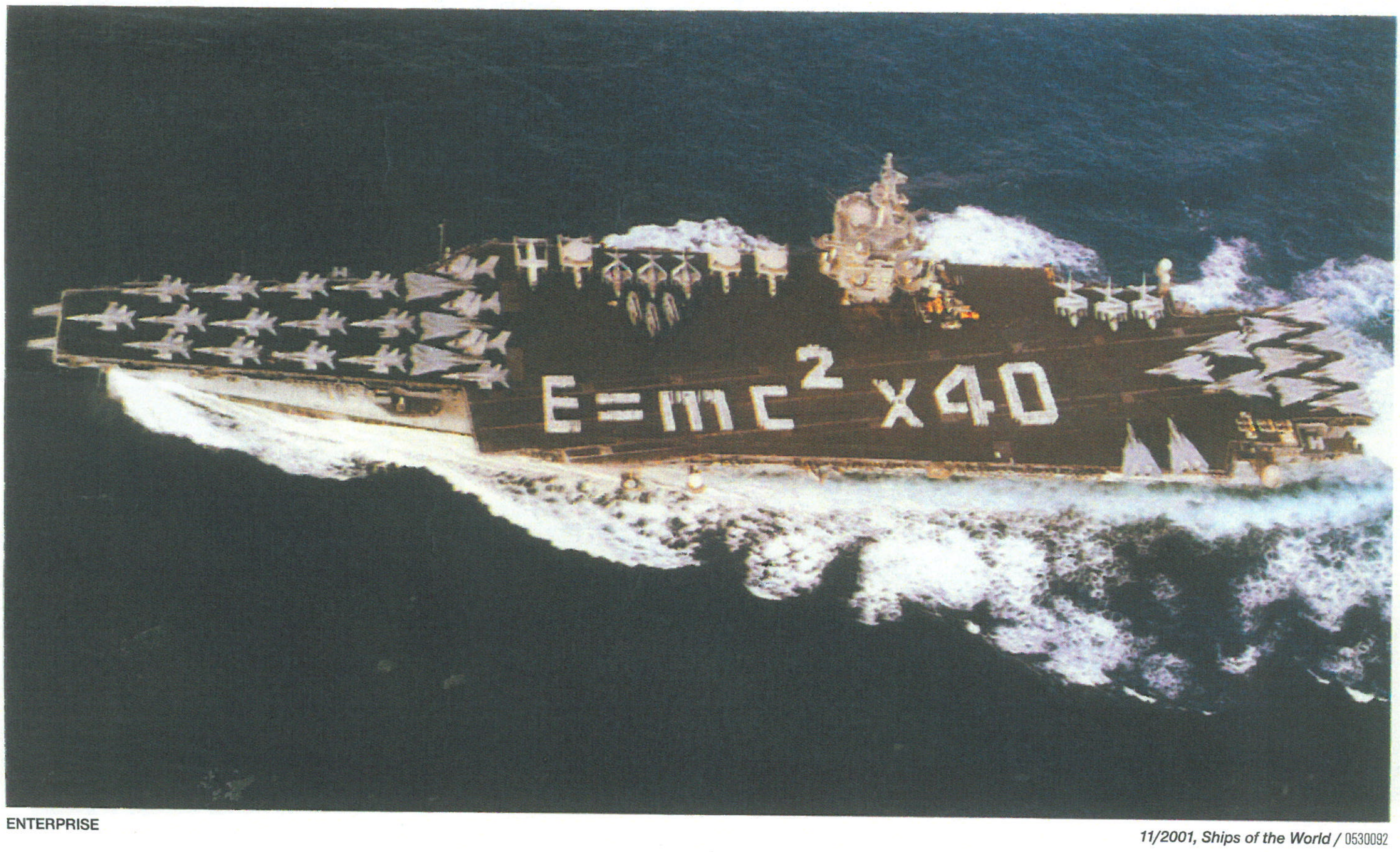


ENTERPRISE

11/2001, Ships of the World / 0530092

9 + 1 NIMITZ CLASS (CVNM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*
NIMITZ	CVN 68	Newport News Shipbuilding	22 June 1968	13 May 1972	3 May 1975	PA
DWIGHT D EISENHOWER	CVN 69	Newport News Shipbuilding	15 Aug 1970	11 Oct 1975	18 Oct 1977	AA/Conv
CARL VINSON	CVN 70	Newport News Shipbuilding	11 Oct 1975	15 Mar 1980	13 Mar 1982	PA
THEODORE ROOSEVELT	CVN 71	Newport News Shipbuilding	13 Oct 1981	27 Oct 1984	25 Oct 1986	AA
ABRAHAM LINCOLN	CVN 72	Newport News Shipbuilding	3 Nov 1984	13 Feb 1988	11 Nov 1989	PA
GEORGE WASHINGTON	CVN 73	Newport News Shipbuilding	25 Aug 1986	21 July 1990	4 July 1992	AA
JOHN C STENNIS	CVN 74	Newport News Shipbuilding	13 Mar 1991	13 Nov 1993	9 Dec 1995	PA
HARRY S TRUMAN	CVN 75	Newport News Shipbuilding	29 Nov 1993	14 Sep 1996	25 July 1998	AA
RONALD REAGAN	CVN 76	Newport News Shipbuilding	12 Feb 1998	4 Mar 2001	12 July 2003	PA
GEORGE H W BUSH	CVN 77	Newport News Shipbuilding	19 May 2003	Mar 2006	Apr 2008	Ord

Displacement, tons: 72,916 (CVN 68-70), 73,973 (CVN 71) light; 91,487 (CVN 68-70), 96,386 (CVN 71), 102,000 (CVN 72-77) full load

Dimensions, feet (metres): 1,040 pp; 1,092 oa × 134 wl × 37 (CVN 68-70); 38.7 (CVN 71); 39 (CVN 72-76)
(317; 332.9 × 40.8 × 11.3; 11.8; 11.9)

Flight deck, feet (metres): 1,092; 779.8 (angled) × 252 *(332.9; 237.7 × 76.8)*

Main machinery: Nuclear; 2 Westinghouse/GE PWR A4W/A1G; 4 turbines; 280,000 hp *(209 MW)*; 4 emergency diesels; 10,720 hp *(8 MW)*; 4 shafts

Speed, knots: 30+

Complement: 3,200 (160 officers); 2,480 aircrew (320 officers); Flag 70 (25 officers)

Missiles: SAM: 2 or 3 Raytheon GMLS Mk 29 octuple launchers ❶; NATO Sea Sparrow; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg. ESSM in due course. 2 GDC Mk 49 RAM launchers (CVN 68, 69, 76); 21 rds/launcher; passive IR/anti-radiation homing to 9.6 km *(5.2 n miles)* at 2 Mach; warhead 9.1 kg.

Guns: 4 General Electric/General Dynamics 20 mm Vulcan Phalanx 6-barrelled Mk 15 (CVN 70-75) ❷; 3,000 rds/min (or 4,500 in Block 1) combined to 1.5 km.

Countermeasures: Decoys: SSTDS (torpedo defence system) SLQ 25 Nixie.

ESM/ECM: SLQ-32(V)4 intercept and jammers. WLR-1H is being removed.

Combat data systems: ACDS Block 0 or 1 naval tactical and advanced combat direction systems; Links 4A, 11, 14 and 16. GCCS (M). SATCOMS: SSQ-82, SRR-1, WSC-3 (UHF), WSC-6 (SHF), USC-38 (EHF) (see Data Systems at front of section). SSDS Mk 2 (CVN 68, 69, 76. To be back fitted in all).

Weapons control: 3 Mk 91 Mod 1 MFCS directors (part of the NSSMS Mk 57 SAM system).

Radars: Air search: ITT SPS-48E ❸; 3D; E/F-band.
Raytheon SPS-49(V)5 ❹; C/D-band.
Hughes Mk 23 TAS ❺; D-band or SPQ-9B with SSDS in due course.

Surface search: Norden SPS-67(V)1; G-band.

CCA: SPN-41, SPN-43C, SPN-44, 2 SPN-46; J/F/J/K-band.

Navigation: Raytheon SPS-64(V)9 (being replaced by SPS-73); Furuno 900; I/J-band.

Fire control: 6 Mk 95; I/J-band (for SAM).

Tacan: URN 25.

Fixed-wing aircraft: Composition of air-wing depends on mission and includes: 10-12 F-14B Tomcat (or F/A-18F Hornet); 36 F/A-18A/C/E Hornet; 4 EA-6B Prowler; 4 E-2C Hawkeye; up to 6 S 3-B Viking.

Helicopters: 4 SH-60F and 2 HH-60H Seahawk.

Programmes: *Nimitz* was authorised in FY67, *Dwight D Eisenhower* in FY70, *Carl Vinson* in FY74, *Theodore Roosevelt* in FY80 and *Abraham Lincoln* and *George Washington* in FY83. Construction contracts for *John C Stennis* and *Harry S Truman* were awarded in June 1988 and for *Ronald Reagan* in December 1994. Authorised in FY99, construction contract for *George H W Bush* awarded in January 2001.

Modernisation: CVN 68 completed a three-year Refuelling and Complex Overhaul (RCOH) in 2001. RCOH of CVN 69 started in 2001 and is to complete in November 2004. RCOH of CVN 70 is to be undertaken 2006-09. SSDS Mk 2 Mod 0 installed in CVN 68 (to be upgraded to Mk 2 Mod 1 in due course). This includes fitting two RAM systems and SPQ-9B radar vice Mk 23 TAS. SSDS Mk 2 Mod 1 fitted to CVN 69 and to CVN 76. RAM systems replace one Mk 29 and all Phalanx launchers. CVN 70 to be similarly fitted during RCOH. Phalanx systems are being progressively removed from CVN 71-75 and replaced by two RAM systems.

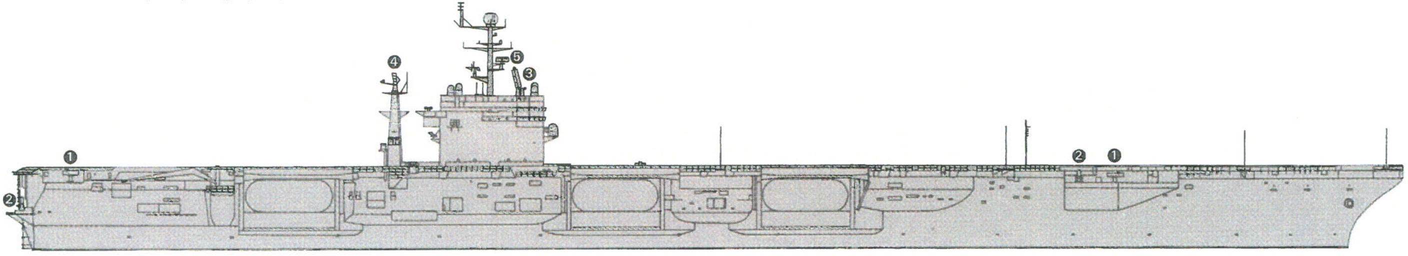
Structure: Damage control measures include sides with system of full and empty compartments (full compartments can contain aviation fuel), approximately 2.5 in Kevlar plating over certain areas of side shell, box protection over magazine and machinery spaces. Aviation facilities include four lifts, two at the forward end of the flight deck, one to starboard abaft the island and one to port at the stern. There are four steam catapults (C13-1 (CVN 68-71), C13-2 (CVN 72-77)) and four (or three) Mk 7 Mod 3 arrester wires. Launch rate is one every 20 seconds. The hangar can hold less than half the full aircraft complement, deckhead is 25.6 ft. Aviation fuel, 8,500 tons. Tactical Flag Command Centre for Flagship role. During RCOH, CVN 68 and 69 fitted with reshaped island (the mainmast has three yardarms to support more antennas). Major structural differences in CVN 76 include: a stretched island which includes a bigger bridge and a three yardarm mainmast and which incorporates the after mast (separate in previous ships) and the bomb elevator. Other changes include a bulbous bow to reduce drag and a modified flight deck (angled deck increased by 0.1 degrees) to allow the use of two catapults while aircraft land.

Operational: Multimission role of 'attack/ASW'. From CVN 70 onwards ships have an A/S control centre and A/S facilities; CVN 68 and 69 are backfitted. Endurance of 16 days for aviation fuel (steady flying). 20 years' theoretical life for nuclear reactors; greater than 1 million miles between refuelling. Ships' complements and air wings can be changed depending on the operational task.

UPDATED

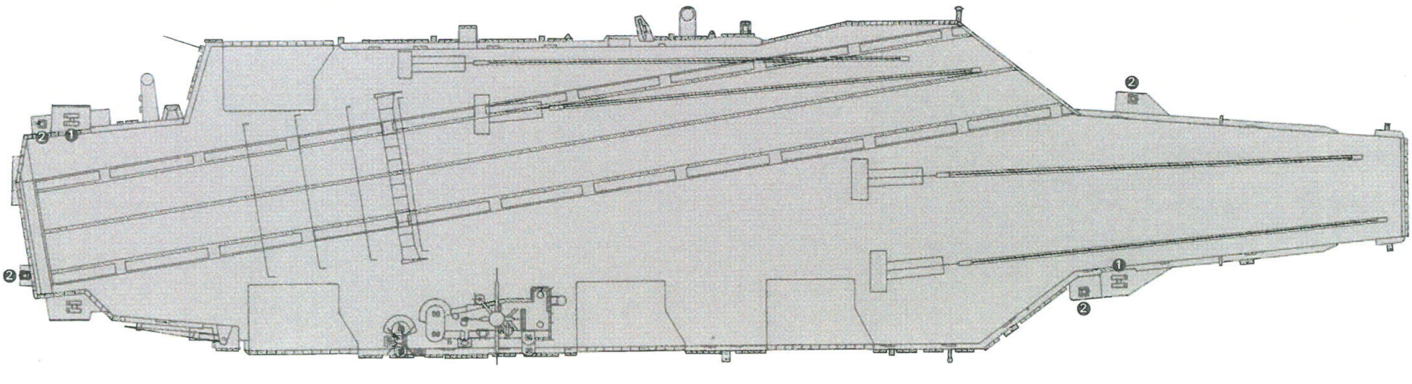
GEORGE H W BUSH (computer graphic)

3/2003, Ships of the World* / 0572799



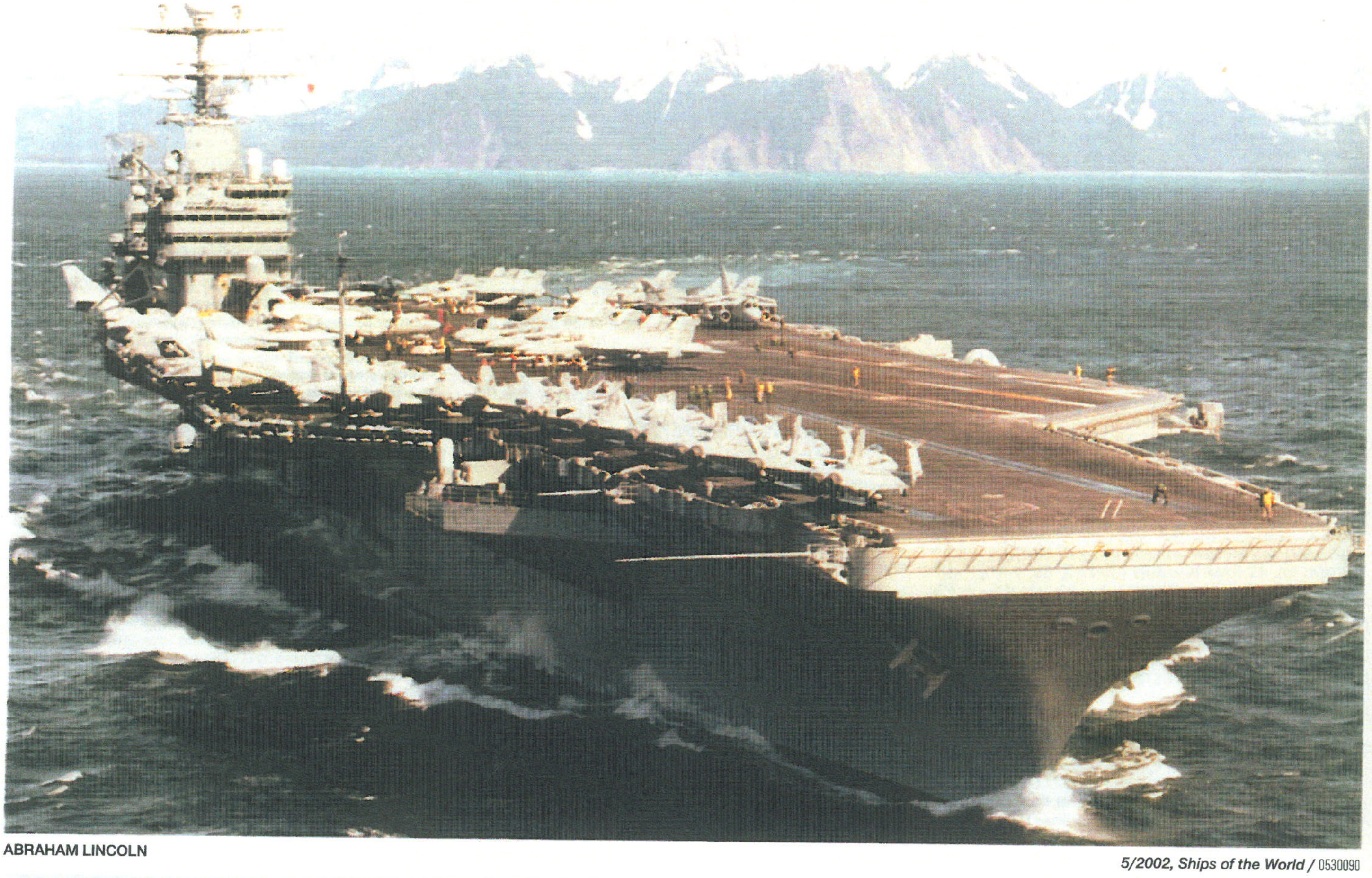
JOHN C STENNIS

(Scale 1 : 1,800), Ian Sturton / 0131375



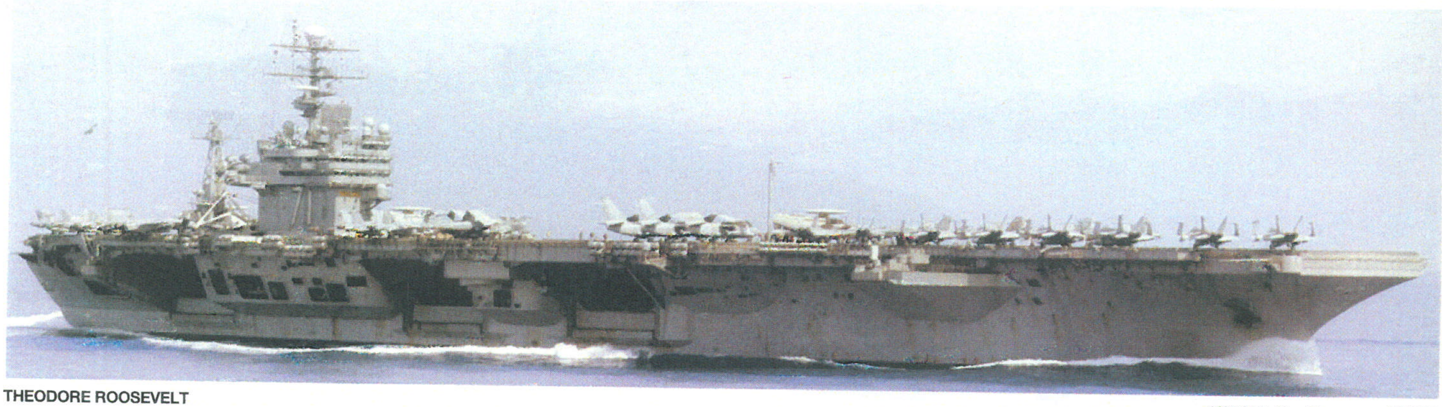
JOHN C STENNIS

(Scale 1 : 1,800), Ian Sturton / 0131374



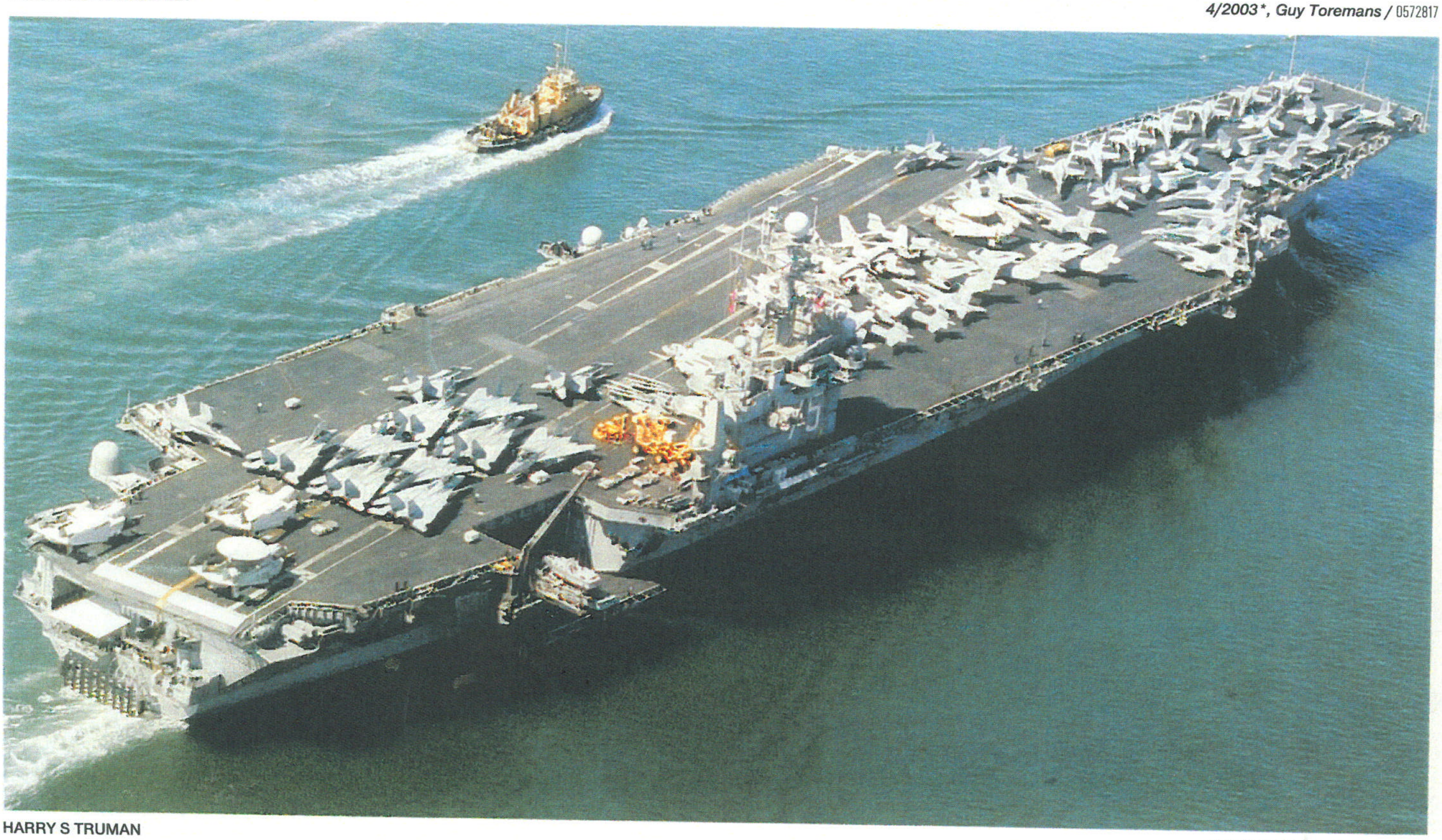
ABRAHAM LINCOLN

5/2002, Ships of the World / 0530090



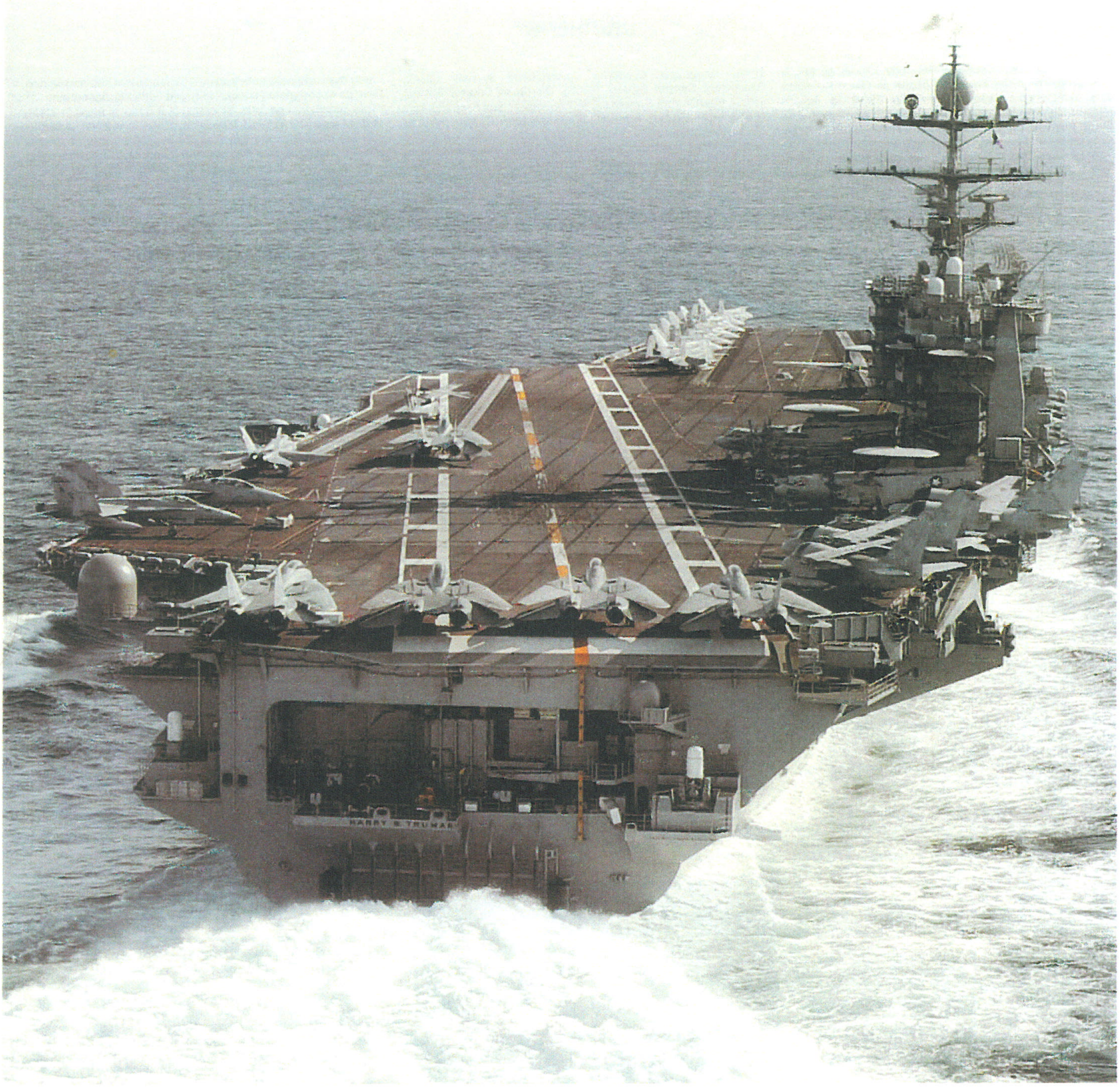
THEODORE ROOSEVELT

4/2003, Guy Toremans* / 0572817

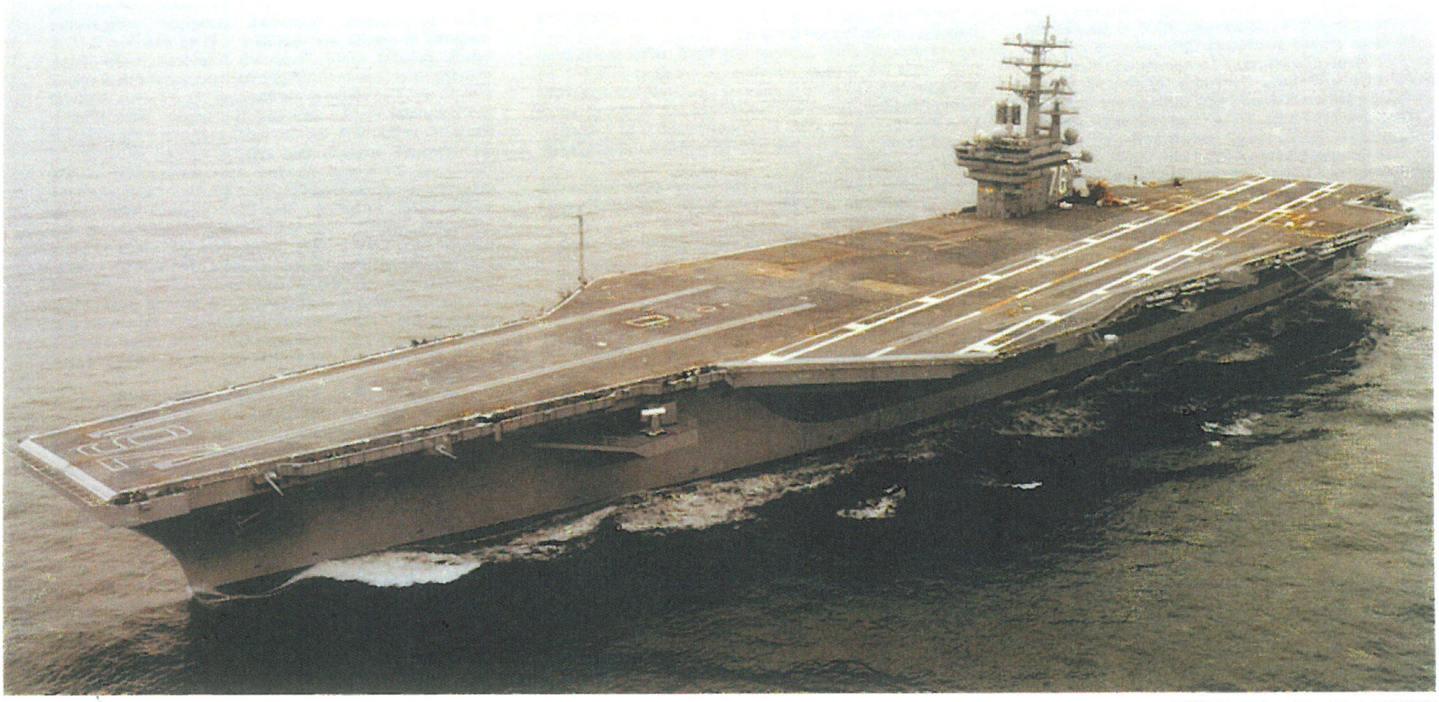


HARRY S TRUMAN

5/2003, M J McBride* / 0572771



HARRY S TRUMAN *5/2000, US Navy* / 0131338



RONALD REAGAN *7/2003*, Ships of the World* / 0572798

CRUISERS

Notes: Integrated Ship Controls. Formerly known as Smart Ship, Integrated Ship Controls (ISC) began as Naval Research Advisory Committee recommendation in 1996 to reduce manning through technology. *Yorktown* (CG 48) was selected as first Smart Ship with implementation of 47 workload-reduction initiatives tested and evaluated during a five-month deployment completed in June 1997. Fourteen more initiatives installed in July 1997. Core systems included: Integrated Bridge System (IBS), Integrated Condition Assessment System (ICAS), Machinery Control System (MCS), Damaged Control System (DCS), Fuel Control System (FCS), fibre optic Local Area Network (LAN) and Wireless Internal Communication System (WICS). *Yorktown's* experience validated these technologies, combined with changes in policies, procedures and new watch routines, to generate substantial reductions in workload. The first installation of ISC in *Ticonderoga* (CG 47) was very challenging and more costly than originally anticipated. All subsequent ISC installations have been completed successfully and within budget during 20-week installation periods: *Monterey* (CG 61) was fitted in 2000; *Valley Forge* (CG 50) and *Mobile Bay* (CG 53) in 2001; *Antietam* (CG 54) in 2002; *Hue City* (CG 66) in 2003. *Cape St George* (CG 71) and *Philippine Sea* are scheduled for 2004. Remaining ships of class will receive ISC upgrading during the Cruiser Modernisation Programme.

27 TICONDEROGA CLASS: GUIDED MISSILE CRUISERS (AEGIS) (CGHM)

Name	*No*	*Builder/Programme*	*Laid down*	*Launched*	*Commissioned*	*F/S*
TICONDEROGA	CG 47 (ex-DDG 47)	Ingalls Shipbuilding	21 Jan 1980	25 Apr 1981	22 Jan 1983	AA
YORKTOWN	CG 48	Ingalls Shipbuilding	19 Oct 1981	17 Jan 1983	4 July 1984	AA
VINCENNES	CG 49	Ingalls Shipbuilding	20 Oct 1982	14 Jan 1984	6 July 1985	PA
VALLEY FORGE	CG 50	Ingalls Shipbuilding	14 Apr 1983	23 June 1984	18 Jan 1986	PA
THOMAS S GATES	CG 51	Bath Iron Works	31 Aug 1984	14 Dec 1985	22 Aug 1987	PA
BUNKER HILL	CG 52	Ingalls Shipbuilding	11 Jan 1984	11 Mar 1985	20 Sep 1986	PA
MOBILE BAY	CG 53	Ingalls Shipbuilding	6 June 1984	22 Aug 1985	21 Feb 1987	PA
ANTIETAM	CG 54	Ingalls Shipbuilding	15 Nov 1984	14 Feb 1986	6 June 1987	PA
LEYTE GULF	CG 55	Ingalls Shipbuilding	18 Mar 1985	20 June 1986	26 Sep 1987	AA
SAN JACINTO	CG 56	Ingalls Shipbuilding	24 July 1985	14 Nov 1986	23 Jan 1988	AA
LAKE CHAMPLAIN	CG 57	Ingalls Shipbuilding	3 Mar 1986	3 Apr 1987	12 Aug 1988	PA
PHILIPPINE SEA	CG 58	Bath Iron Works	8 May 1986	12 July 1987	18 Mar 1989	AA
PRINCETON	CG 59	Ingalls Shipbuilding	15 Oct 1986	2 Oct 1987	11 Feb 1989	PA
NORMANDY	CG 60	Bath Iron Works	7 Apr 1987	19 Mar 1988	9 Dec 1989	AA
MONTEREY	CG 61	Bath Iron Works	19 Aug 1987	23 Oct 1988	16 June 1990	AA
CHANCELLORSVILLE	CG 62	Ingalls Shipbuilding	24 June 1987	15 July 1988	4 Nov 1989	PA
COWPENS	CG 63	Bath Iron Works	23 Dec 1987	11 Mar 1989	9 Mar 1991	PA
GETTYSBURG	CG 64	Bath Iron Works	17 Aug 1988	22 July 1989	22 June 1991	AA
CHOSIN	CG 65	Ingalls Shipbuilding	22 July 1988	1 Sep 1989	12 Jan 1991	PA
HUE CITY	CG 66	Ingalls Shipbuilding	20 Feb 1989	1 June 1990	14 Sep 1991	AA
SHILOH	CG 67	Bath Iron Works	1 Aug 1989	8 Sep 1990	2 July 1992	PA
ANZIO	CG 68	Ingalls Shipbuilding	21 Aug 1989	2 Nov 1990	2 May 1992	AA
VICKSBURG	CG 69	Ingalls Shipbuilding	30 May 1990	2 Aug 1991	14 Nov 1992	AA
LAKE ERIE	CG 70	Bath Iron Works	6 Mar 1990	13 July 1991	24 July 1993	PA
CAPE ST GEORGE	CG 71	Ingalls Shipbuilding	19 Nov 1990	10 Jan 1992	12 June 1993	AA
VELLA GULF	CG 72	Ingalls Shipbuilding	22 Apr 1991	13 June 1992	18 Sep 1993	AA
PORT ROYAL	CG 73	Ingalls Shipbuilding	18 Oct 1991	20 Nov 1992	9 July 1994	PA

Displacement, tons: 9,590 (CG 47-48); 9,407 (CG 49-51); 9,957 (remainder) full load
Dimensions, feet (metres): 567 × 55 × 31 (sonar) *(172.8 × 16.8 × 9.5)*
Main machinery: 4 GE LM 2500 gas turbines; 86,000 hp *(64.16 MW)* sustained; 2 shafts; cp props
Speed, knots: 30+. **Range, miles:** 6,000 at 20 kt
Complement: 358 (24 officers); accommodation for 405 total 312 (24 officers) (CG 48)

Missiles: SLCM: GDC Tomahawk (CG 52 onwards); Tercom aided guidance to 1,300 km *(700 n miles)* (TLAM-C and D) or 1,853 km *(1,000 n miles)* (TLAM-C Block III) at 0.7 Mach; warhead 454 kg (TLAM-C) or 347 kg shaped charge (TLAM-C Blocks II and III) or submunitions (TLAM-D). TLAM-C has GPS back-up to Tercom and a CEP of 10 m.

SSM: 8 McDonnell Douglas Harpoon (2 quad) ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg. Extended range SLAM can be fired from modified Harpoon canisters.

SAM: 68 (CG 47-51); 122 (CG 52 onwards) GDC Standard SM-2MR; command/inertial guidance; semi-active radar homing to 167 km *(90 n miles)* at 2 Mach. SM-2 Block IIIB uses an IR seeker. SAM and ASROC missiles are fired from 2 twin Mk 26 Mod 5 launchers ❷ (CG 47-51) and 2 Mk 41 Mod 0 vertical launchers ❸ (61 missiles per launcher) (CG 52 onwards). Tomahawk is carried in CG 52 onwards.

A/S: Honeywell ASROC (CG 47-51) and Loral ASROC VLA (CG 52 onwards). VLA has a range of 16.6 km *(9 n miles)*; inertial guidance of 1.6-10 km *(1-5.4 n miles)*; payload Mk 46 Mod 5 Neartip or Mk 50.

Guns: 2 FMC 5 in *(127 mm)*/54 Mk 45 (Mod 0 (CG 47-50); Mod 1 (CG 51 onwards)) ❹; 20 rds/min to 23 km *(12.6 n miles)* anti-surface; weight of shell 32 kg. Modified 5 in *(127 mm)*/62 barrel to be fitted from 2005 to take ERGM (extended-range guided munitions); GPS guidance to about 140 km *(75.6 n miles)*; warhead 72 bomblets; cep 10 m.

2 General Electric/General Dynamics 20 mm/76 Vulcan Phalanx 6-barrelled Mk 15 Mod 2 ❺; 3,000 rds/min (4,500 in Block 1) combined to 1.5 km. To be fitted with high-definition thermal imagers (HDTI) for tracking small craft.

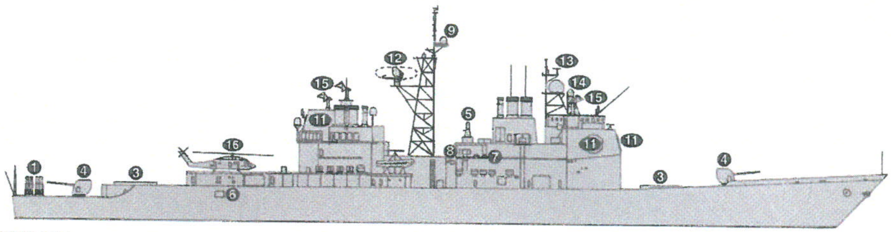
2 McDonnell Douglas 25 mm. 4—12.7 mm MGs.

Torpedoes: 6—324 mm Mk 32 (2 triple) Mod 14 tubes (fitted in the ship's side aft) ❻. 36 Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg or Alliant/Westinghouse Mk 50; active/passive homing to 15 km *(8.1 n miles)* at 50 kt; warhead 45 kg shaped charge.

Countermeasures: Decoys: Up to 8 Loral Hycor SRBOC 6-barrelled fixed Mk 36 Mod 2 ❼; IR flares and chaff. Nulka being acquired. SLQ-25 Nixie; towed torpedo decoy.

ESM/ECM: Raytheon SLQ-32V(3)/SLY-2 ❽; intercept, jammers.

Combat data systems: CEC being fitted 1996-2007 starting with CG 66 and 69. NTDS with Links 4A, 11, 14. GCCS (M) and Link 16 being fitted. Link 22 in due course. SATCOM WRN-5, WSC-3 (UHF), USC-38 (EHF). UYK 7 and 20 computers (CG 47-58); UYK 43/44 (CG 59 onwards and being backfitted to CG 56-58). SQQ-28 for LAMPS sonobuoy datalink ❾ (see Data Systems at front of section).



BUNKER HILL (Scale 1 : 1,500), Ian Sturton / 0016356

PORT ROYAL 5/2002, Mick Prendergast / 0529961

Weapons control: SWG-3 Tomahawk WCS. SWG-1A Harpoon LCS. Aegis Mk 7 Mod 4 multitarget tracking with Mk 99 MFCS (includes 4 Mk 80 illuminator directors); has at least 12 channels of fire. Singer Librascope Mk 116 Mod 6 (53B) or Mod 7 (53C) FCS for ASW. Lockheed Mk 86 Mod 9 GFCS.

Radars: Air search/fire control: RCA SPY-1A phased arrays ❿; 3D; E/F-band (CG 47-58).

Raytheon SPY-1B phased arrays ⓫; 3D; E/F-band (CG 59 on).

Air search: Raytheon SPS-49(V)7 or 8 ⓬; C/D-band; range 457 km *(250 n miles)*.

Surface search: ISC Cardion SPS-55 ⓭; I/J-band.

Navigation: Raytheon SPS-64(V)9; I-band.

Fire control: Lockheed SPQ-9A/B ⓮; I/J-band.

Four Raytheon SPG-62 ⓯; I/J-band.

Tacan: URN 25. IFF Mk XII AIMS UPX-29.

Sonars: General Electric/Hughes SQS-53B (CG 47-51); bow-mounted; active search and attack; medium frequency.

Gould SQR-19 (CG 54-55); passive towed array (TACTAS).

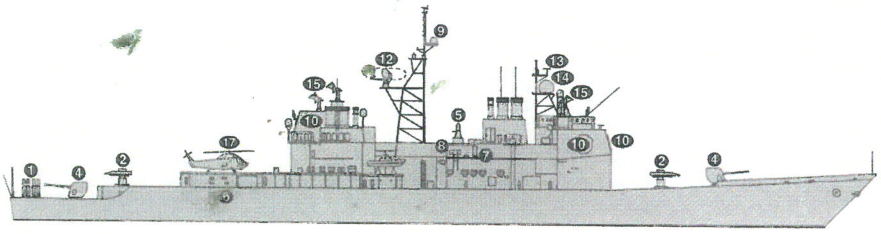
Gould/Raytheon SQQ-89(V)3 (CG 52 onwards); combines hull-mounted active SQS-53B (CG 52-67) or SQS-53C (CG 68-73) and passive towed array SQR-19.

Helicopters: 2 SH-60B Seahawk LAMPS III ⓰; 2 SH-2F LAMPS I (CG 47-48) ⓱. UAV in due course.

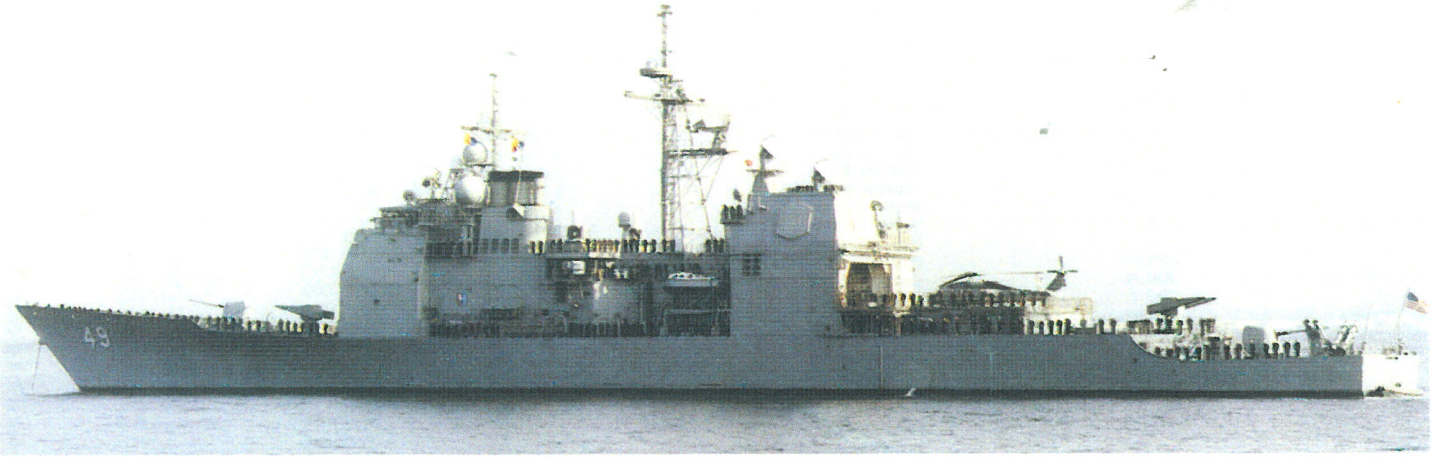
Modernisation: Four major combat system Baselines define the broad capability categories of this class. Baseline 1 ships (CG 47-51) are fitted with SPY-1A radar, LAMPS I/III helicopter, Mk 26 missile launchers, Standard SM-2 MR Block I/II missiles, ASROC and the UYK-7 computing system. In the Baseline 2 ships (CG 52-58), Mk 26 launchers were replaced by Mk 41 Mod 0 Vertical Launch System (VLS) and Tomahawk was fitted. ASW improvements included SQR-19 in CG 54-55 and SQQ-89(V)3 integrated ASW suite with ASROC VLA in CG 56-58. ASROC VLA was later fitted in CG 52-55 in 1998. Baseline 3 ships (CG 59-64) incorporated the lighter SPY-1B radar, UYK-21 displays and UYK-43/44 computers in place of UYK-7s. Baseline 4 ships (CG 65-73) were fitted with SPY-1B (V) radar. While the basic hardware configurations have remained constant, the primary combat system computer has been progressively upgraded. Computer programmes currently in service are: Baseline 1 (1.4); Baseline 2 (2.10 which includes COTS Shipboard Advanced Radar Target Identification System (SARTIS)); Baslines 3 and 4 (5 phase 3). Link 16 was also added to the Baseline 3 and 4 ships as part of the computer system upgrade. The Cruiser Modernisation Programme (formerly the Cruiser Conversion Programme) is an extensive upgrade that will be applied to CG 52-73 (Baselines 2, 3 and 4). The core components of the programme include modification of the Mk 41 VLS launchers to fire ESSM, Integrated Ship Controls (ISC), fitting of an additional SPQ-9B fire-control radar, installation of the SQQ-89A(V)15 sonar suite, fitting of the 62 calibre 127 mm gun capable of firing ERGM, upgrade of Vulcan Phalanx to Block 1B, upgrade of the Aegis computer to 7PH1C with open architecture, display upgrades, COTS SARTIS and further platform and habitability upgrades to prolong service life. CG 71 is the first ship to be upgraded in FY06. Plans to enable all Aegis ships to fire SM-3 ABM missiles are being pursued separately.

Structure: The 'Ticonderoga' class design is a modification of the 'Spruance' class. The same basic hull is used, with the same gas-turbine propulsion plant although the overall length is slightly increased. The design includes Kevlar armour to protect vital spaces. No stabilisers. *Vincennes* and later ships have a lighter tripod mainmast vice the square quadruped of the first two.

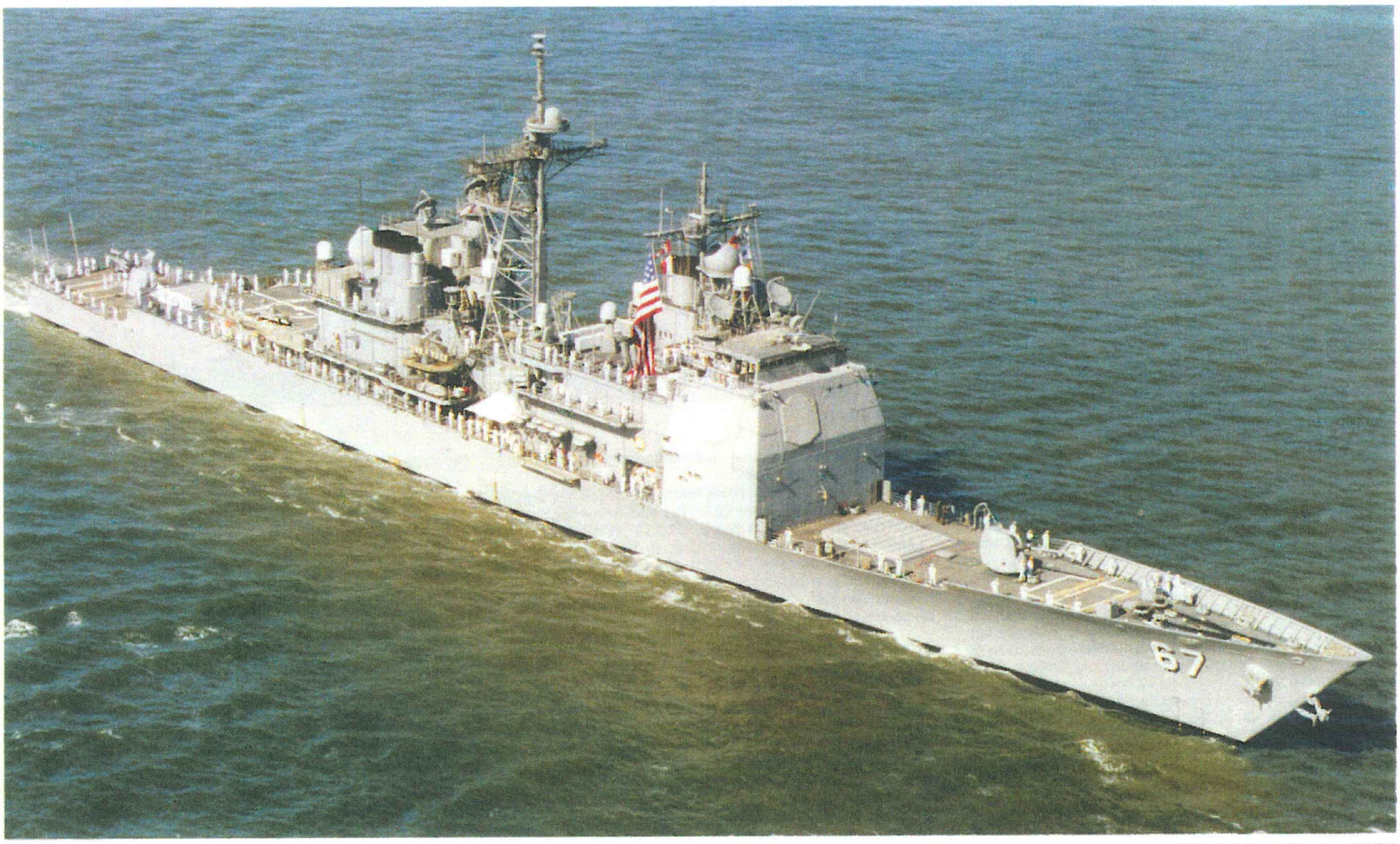
Operational: The continuing development of the sea-based element of the Ballistic Missile Defense Programme is known as Aegis BMD. Test firings of the experimental Standard SM-3 missile were made by CG 67 on 24 September 1999. Since then CG 70 has successfully fired an SM-3 missile with a Lightweight Exo-Atmospheric Projectile (LEAP) to intercept an 'Aries' missile target on four occasions: during FM-2 (Flight Mission-2) on 25 January 2002, FM-3 on 13 June 2002, FM-4 on 21 November 2002 and FM-6 on 11 December 2003. Further test firings are planned. The decommissioning for Baseline 1 ships are: CG 47 and CG 50 by the end of 2004, CG 49 and CG 51 in 2005 and CG 48 in 2006. ***UPDATED***



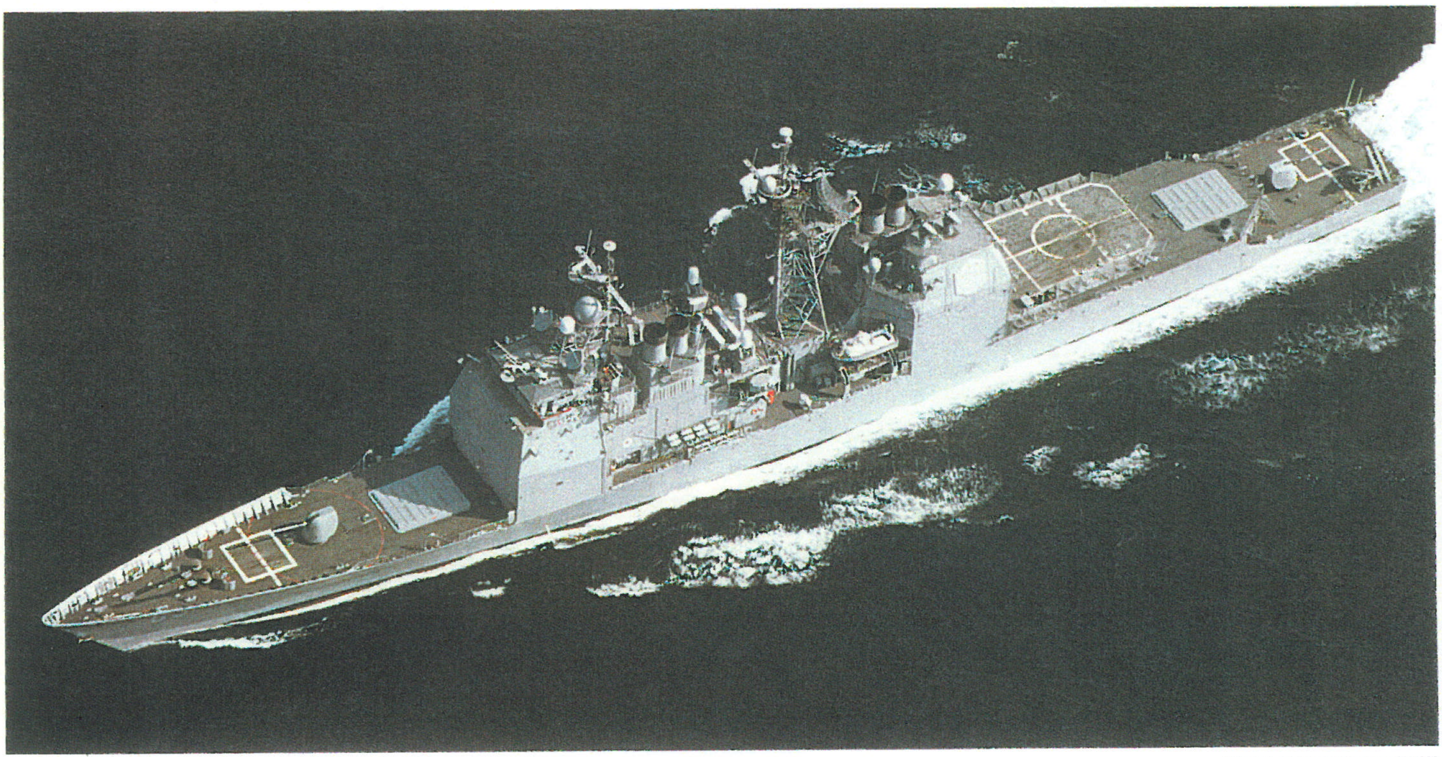
TICONDEROGA (Scale 1 : 1,500), Ian Sturton / 0016357



VINCENNES *10/2002, John Mortimer* / 0529962



SHILOH *10/2003*, Frank Findler* / 0572768



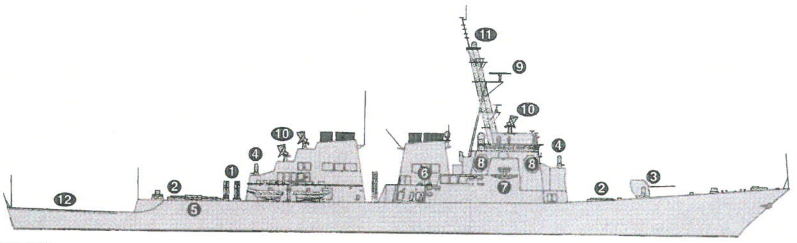
COWPENS *2/2001, Sattler/Steele* / 0131328

DESTROYERS

28 ARLEIGH BURKE CLASS (FLIGHTS I and II): GUIDED MISSILE DESTROYERS (AEGIS) (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*
ARLEIGH BURKE	DDG 51	Bath Iron Works	6 Dec 1988	16 Sep 1989	4 July 1991	AA
BARRY (ex-*John Barry*)	DDG 52	Ingalls Shipbuilding	26 Feb 1990	10 May 1991	12 Dec 1992	AA
JOHN PAUL JONES	DDG 53	Bath Iron Works	8 Aug 1990	26 Oct 1991	18 Dec 1993	PA
CURTIS WILBUR	DDG 54	Bath Iron Works	12 Mar 1992	16 May 1992	4 Apr 1994	PA
STOUT	DDG 55	Ingalls Shipbuilding	8 Aug 1991	16 Oct 1992	13 Aug 1994	AA
JOHN S McCAIN	DDG 56	Bath Iron Works	3 Sep 1991	26 Sep 1992	2 July 1994	PA
MITSCHER	DDG 57	Ingalls Shipbuilding	12 Feb 1992	7 May 1993	10 Dec 1994	AA
LABOON	DDG 58	Bath Iron Works	23 Mar 1992	20 Feb 1993	18 Mar 1995	AA
RUSSELL	DDG 59	Ingalls Shipbuilding	24 July 1992	20 Oct 1993	20 May 1995	PA
PAUL HAMILTON	DDG 60	Bath Iron Works	24 Aug 1992	24 July 1993	27 May 1995	PA
RAMAGE	DDG 61	Ingalls Shipbuilding	4 Jan 1993	11 Feb 1994	22 July 1995	AA
FITZGERALD	DDG 62	Bath Iron Works	9 Feb 1993	29 Jan 1994	14 Oct 1995	PA
STETHEM	DDG 63	Ingalls Shipbuilding	11 May 1993	17 June 1994	21 Oct 1995	PA
CARNEY	DDG 64	Bath Iron Works	3 Aug 1993	23 July 1994	13 Apr 1996	AA
BENFOLD	DDG 65	Ingalls Shipbuilding	27 Sep 1993	9 Nov 1994	30 Mar 1996	PA
GONZALEZ	DDG 66	Bath Iron Works	3 Feb 1994	18 Feb 1995	12 Oct 1996	AA
COLE	DDG 67	Ingalls Shipbuilding	28 Feb 1994	10 Feb 1995	8 June 1996	AA
THE SULLIVANS	DDG 68	Bath Iron Works	27 July 1994	12 Aug 1995	19 Apr 1997	AA
MILIUS	DDG 69	Ingalls Shipbuilding	8 Aug 1994	1 Aug 1995	23 Nov 1996	PA
HOPPER	DDG 70	Bath Iron Works	23 Feb 1995	6 Jan 1996	6 Sep 1997	PA
ROSS	DDG 71	Ingalls Shipbuilding	10 Apr 1995	23 Mar 1996	28 June 1997	AA
MAHAN	DDG 72	Bath Iron Works	17 Aug 1995	29 June 1996	14 Feb 1998	AA
DECATUR	DDG 73	Bath Iron Works	11 Jan 1996	10 Nov 1996	29 Aug 1998	PA
McFAUL	DDG 74	Ingalls Shipbuilding	26 Jan 1996	18 Jan 1997	25 Apr 1998	AA
DONALD COOK	DDG 75	Bath Iron Works	9 July 1996	3 May 1997	4 Dec 1998	AA
HIGGINS	DDG 76	Bath Iron Works	14 Nov 1996	4 Oct 1997	24 Apr 1999	PA
O'KANE	DDG 77	Bath Iron Works	5 May 1997	28 Mar 1998	23 Oct 1999	PA
PORTER	DDG 78	Ingalls Shipbuilding	2 Dec 1996	12 Nov 1997	20 Mar 1999	AA

Displacement, tons: 8,315 (DDG 51-71); 8,400 (DDG 72-78)
Dimensions, feet (metres): 504.5 oa; 466 wl × 66.9 × 20.7; 32.7 (sonar) *(153.8; 142 × 20.4 × 6.3; 9.9)*
Main machinery: 4 GE LM 2500 gas turbines; 105,000 hp *(78.33 MW)* sustained; 2 shafts; cp props
Speed, knots: 32. **Range, miles:** 4,400 at 20 kt
Complement: 346 (22 officers)



ARLEIGH BURKE

(Scale 1 : 1,500), Ian Sturton / 0053331

Missiles: SLCM: 56 GDC/Hughes Tomahawk; Tercom aided guidance to 1,300 km *(700 n miles)* (TLAM-C and D) or 1,853 km *(1,000 n miles)* (TLAM-C Block III) at 0.7 Mach; warhead 454 kg (TLAM-C) or 347 kg shaped charge (TLAM-C Blocks II and III) or submunitions (TLAM-D). TLAM-C has GPS back-up to Tercom and a CEP of 10 m.

SSM: 8 McDonnell Douglas Harpoon (2 quad) ❶; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.

SAM: GDC Standard SM-2MR Block IV; command/inertial guidance; semi-active radar homing to 167 km *(90 n miles)* at 2 Mach. SM-2ER extended range to 137 km *(74 n miles)* from DDG 72 onwards. 2 Martin Marietta Mk 41 (Mod 0 forward, Mod 1 aft) Vertical Launch Systems (VLS) for Tomahawk, Standard and ASROC VLA ❷; 2 magazines; 29 missiles forward, 61 aft. Mod 2 from DDG 59 onwards.

A/S: Loral ASROC VLA; inertial guidance to 1.6-16.6 km *(1-9 n miles)*; payload Mk 46 Mod 5 Neartip.

Guns: 1 FMC/UDLP 5 in *(127 mm)*/54 Mk 45 Mod 1 or 2 ❸; 20 rds/min to 23 km *(12.6 n miles)*; weight of shell 32 kg. Modified 5 in *(127 mm)*/62 barrel may be fitted from 2000 to take ERGM (extended-range guided munitions); GPS guidance to 116.7 km *(63 n miles)*; warhead 72 bomblets; cep 10 m.

2 General Electric/General Dynamics 20 mm Vulcan Phalanx 6-barrelled Mk 15 ❹; 3,000 rds/min (4,500 in Block 1) combined to 1.5 km. Being fitted with IR detectors for tracking small craft. To be replaced by RAM from 2004.

Torpedoes: 6—324 mm Mk 32 Mod 14 (2 triple) tubes ❺. Alliant Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg or Alliant/Westinghouse Mk 50; active/passive homing to 15 km *(8.1 n miles)* at 50 kt; warhead 45 kg shaped charge.

Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled fixed Mk 36 Mod 12 ❻; IR flares and chaff to 4 km *(2.2 n miles)*. SLQ-25 Nixie; torpedo decoy. NATO Sea Gnat. SLQ-95 AEB. SLQ-39 chaff buoy. Nulka being acquired.

ESM/ECM: Raytheon SLQ-32(V)2 ❼ or SLQ-32(V)3/SLY-2 (from DDG 72 and being backfitted); radar warning. Sidekick modification adds jammer and deception system to (V)2. SRS-1 DF (from DDG 72).

Combat data systems: CEC being fitted. NTDS Mod 5 with Links 4A, 11, 14 and 16 (from DDG 72) and being back fitted. SATCOM SRR-1, WSC-3 (UHF), USC-38 (EHF). SQQ-28 for LAMPS processor datalink. TADIX B Tactical Information Exchange System (from DDG 72). Link 22 in due course (see Data Systems at front of section).

Weapons control: SWG-3 Mk 37 Tomahawk WCS. SWG-1A Harpoon LCS. Aegis multitarget tracking with Mk 99 Mod 3 MFCS and three Mk 80 illuminators. GWS 34 Mod 0 GFCS (includes Mk 160 Mod 4 computing system and Kollmorgen Mk 46 Mod 0/1 optronic sight). Singer Librascope Mk 116 Mod 7 FCS for ASW.

Radars: Air search/fire control: RCA SPY-1D phased arrays ❽; 3D; E/F-band.

Surface search: Norden/DRS SPS-67(V)3 ❾; G-band.

Navigation: Raytheon SPS-64(V)9; I-band.

Fire control: Three Raytheon/RCA SPG-62 ❿; I/J-band.

Tacan: URN 25 ⓫. IFF Mk XII AIMS UPX-29.

Sonars: Gould/Raytheon/GE SQQ-89(V)6; combines SQS-53C; bow-mounted; active search and attack with SQR-19B passive towed array (TACTAS) low frequency.

Helicopters: Platform and facilities to fuel and rearm LAMPS III SH-60B/F helicopters ⓬. UAV in due course.

Programmes: First ship authorised in FY85, last pair in FY94. The first 21 are Flight I and the next seven are Flight II.

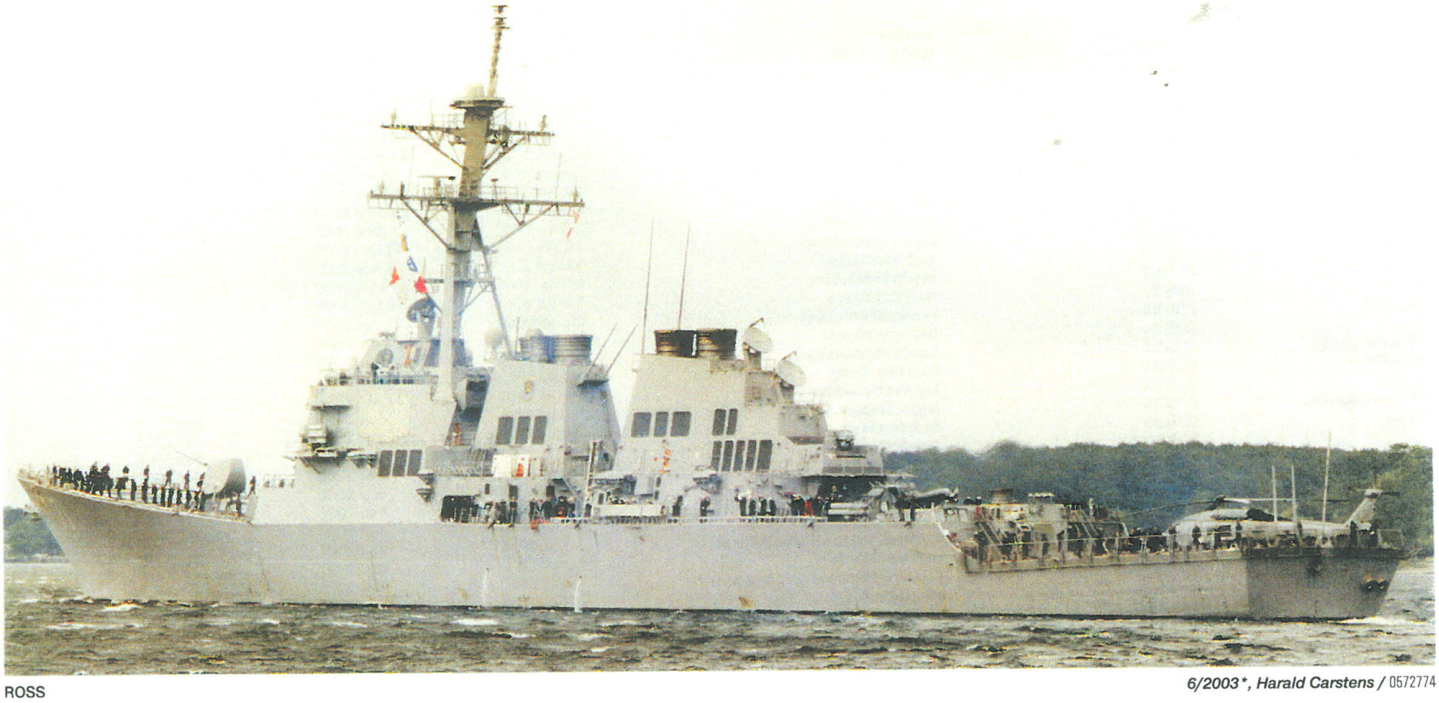
Structure: The ship, except for the aluminium mast, is constructed of steel. 70 tons of armour provided to protect vital spaces. This is the first class of US Navy warship designed with a 'collective protection system for defense against the fallout associated with NBC warfare'. The ship's crew are protected by double air-locked hatches, fewer accesses to the weatherdecks and positive pressurisation of the interior of the ship to keep out contaminants. All incoming air is filtered and more reliance placed on recirculating air inside the ship. All accommodation compartments have sprinkler systems. Stealth technology includes angled surfaces and rounded edges to reduce radar signature and IR signature suppression plus Prairie Masker hull/blade rate suppression. The Ops room is below the waterline and electronics are EMP hardened. The original upright mast design has been changed to increase separation between electronic systems and the forward funnel. Differences in Flight II starting with DDG 72 include Link 16, SLQ-32(V)3 EW suite, extended-range SAM missiles and improved tactical information exchange systems. The topmast is vertical to take the SRS-1. There is also an increase in displacement caused by using more space to carry fuel.

Operational: Two of the class are based at Yokosuka in Japan. Repairs to *Cole*, damaged by a terrorist attack at Aden on 12 October 2000, began in January 2001 at Ingalls and completed on 19 April 2002 when she returned to the fleet.

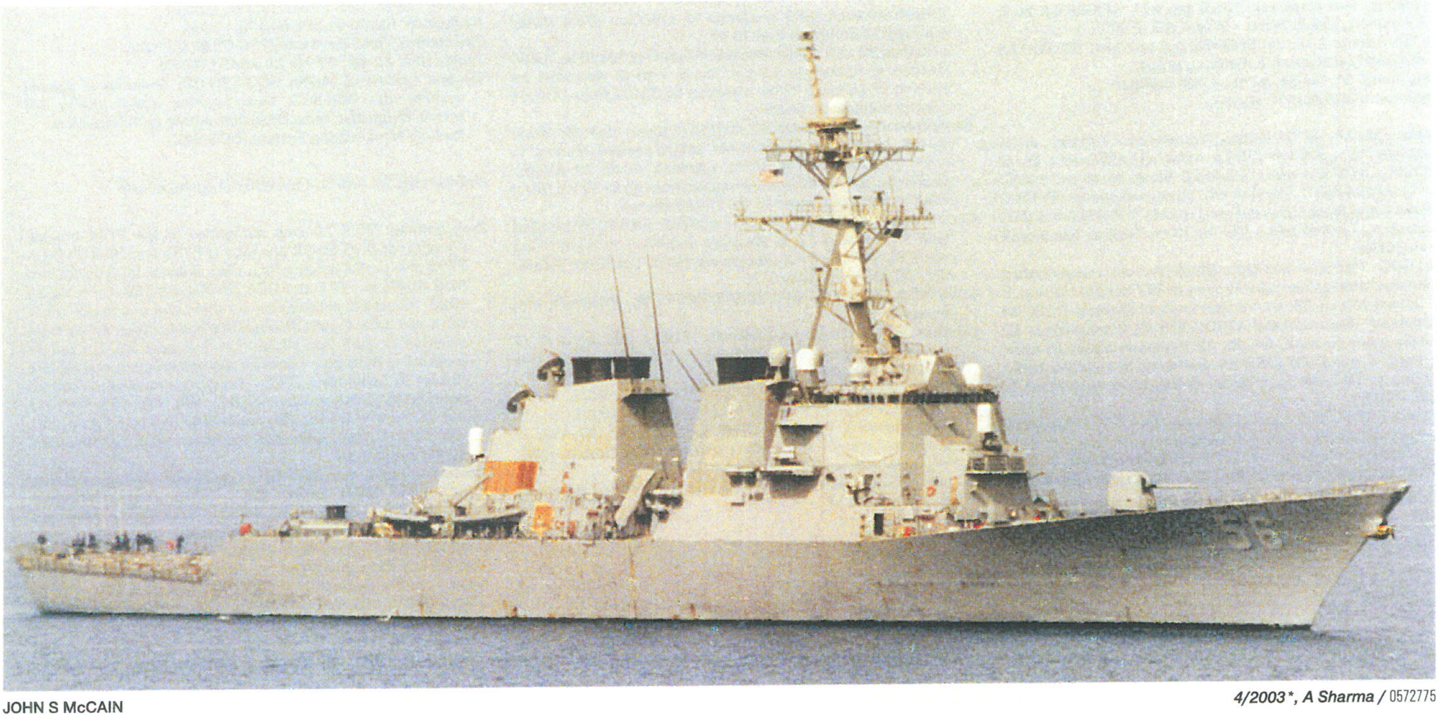
UPDATED

THE SULLIVANS

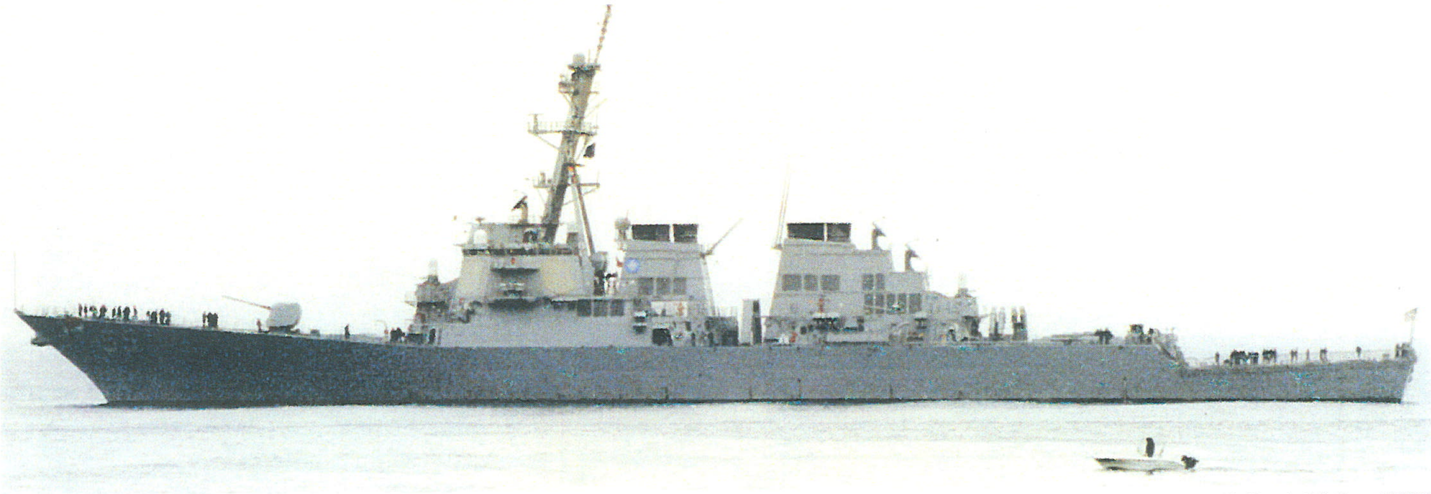
9/2003, H M Steele /* 0572801



ROSS *6/2003*, Harald Carstens* / 0572774



JOHN S McCAIN *4/2003*, A Sharma* / 0572775



STOUT *11/2003*, Giorgio Ghiglione* / 0572773

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13 + 21 ARLEIGH BURKE CLASS (FLIGHT IIA): GUIDED MISSILE DESTROYERS (AEGIS) (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*
OSCAR AUSTIN	DDG 79	Bath Iron Works	9 Oct 1997	7 Nov 1998	19 Aug 2000	AA
ROOSEVELT	DDG 80	Ingalls Shipbuilding	15 Dec 1997	10 Jan 1999	14 Oct 2000	AA
WINSTON S CHURCHILL	DDG 81	Bath Iron Works	7 May 1998	17 Apr 1999	10 Mar 2001	AA
LASSEN	DDG 82	Ingalls Shipbuilding	24 Aug 1998	16 Oct 1999	21 Apr 2001	PA
HOWARD	DDG 83	Bath Iron Works	9 Dec 1998	20 Nov 1999	20 Oct 2001	PA
BULKELEY	DDG 84	Ingalls Shipbuilding	10 May 1999	21 June 2000	8 Dec 2001	AA
McCAMPBELL	DDG 85	Bath Iron Works	15 July 1999	2 July 2000	17 Aug 2002	PA
SHOUP	DDG 86	Ingalls Shipbuilding	13 Dec 1999	22 Nov 2000	22 June 2002	PA
MASON	DDG 87	Bath Iron Works	20 Jan 2000	23 June 2001	12 Apr 2003	AA
PREBLE	DDG 88	Ingalls Shipbuilding	22 June 2000	1 June 2001	9 Nov 2002	PA
MUSTIN	DDG 89	Ingalls Shipbuilding	15 Jan 2001	12 Dec 2001	26 July 2003	PA
CHAFFEE	DDG 90	Bath Iron Works	12 Apr 2001	2 Nov 2002	20 Sep 2003	PA
PINCKNEY	DDG 91	Ingalls Shipbuilding	16 July 2001	29 June 2002	29 May 2004	PA
MOMSEN	DDG 92	Bath Iron Works	15 Oct 2001	9 Aug 2003	Sep 2004	Bldg/PA
CHUNG-HOON	DDG 93	Ingalls, Shipbuilding	14 Jan 2002	11 Jan 2003	Sep 2004	Bldg/PA
NITZE	DDG 94	Bath Iron Works	11 Aug 2002	17 Apr 2004	Sep 2004	Bldg
JAMES E WILLIAMS	DDG 95	Ingalls Shipbuilding	15 July 2002	28 June 2003	Feb 2005	Bldg
BAINBRIDGE	DDG 96	Bath Iron Works	16 Mar 2003	Nov 2004	May 2005	Bldg
HALSEY	DDG 97	Ingalls Shipbuilding	13 Jan 2003	17 Jan 2004	Mar 2005	Bldg
FORREST SHERMAN	DDG 98	Ingalls Shipbuilding	21 July 2003	July 2004	Aug 2005	Bldg
FARRAGUT	DDG 99	Bath Iron Works	23 Nov 2003	Apr 2005	Jan 2006	Bldg
–	DDG 100	Ingalls Shipbuilding	12 Jan 2004	Dec 2004	Feb 2006	Bldg
–	DDG 101	Bath Iron Works	July 2004	Dec 2005	Sep 2006	Ord
–	DDG 102	Bath Iron Works	Apr 2004	July 2006	2007	Ord
–	DDG 103	Northrop Grumman Ship Systems	Mar 2005	Mar 2006	2007	Ord
–	DDG 104	Bath Iron Works	Dec 2005	Apr 2007	2008	Ord
–	DDG 105	Northrop Grumman Ship Systems	Mar 2006	Feb 2007	2008	Ord
–	DDG 106	Bath Iron Works	July 2006	Nov 2007	2009	Ord
–	DDG 107	Northrop Grumman Ship Systems	Mar 2007	Feb 2008	2009	Ord
–	DDG 108	Bath Iron Works	Feb 2007	Jun 2008	2009	Ord
–	DDG 109	Bath Iron Works	Oct 2007	Feb 2009	2010	Ord
–	DDG 110	Northrop Grumman Ship Systems	Mar 2007	Feb 2009	2010	Ord
–	DDG 111	Bath Iron Works	May 2008	Sep 2009	2011	Ord
–	DDG 112	Bath Iron Works	Dec 2008	May 2010	2011	Ord

Displacement, tons: 9,200 full load
Dimensions, feet (metres): 509.5 oa; 471 wl × 66.9 × 20.7; 32.7 (sonar) *(155.3; 143.6 × 20.4 × 6.3; 9.9)*
Main machinery: 4 GE LM 2500-30 gas turbines; 105,000 hp *(78.33 MW)* sustained; 2 shafts; cp props
Speed, knots: 31. **Range, miles:** 4,400 at 20 kt
Complement: 344 plus 22 spare

Missiles: SLCM: GCD/Hughes Tomahawk; Tercom aided guidance to 1,300 km *(700 n miles)* (TLAM-C and D) or 1,853 km *(1,000 n miles)* (TLAM-C Block III) at 0.7 Mach; warhead 454 kg (TLAM-C) or 347 kg shaped charge (TLAM-C Blocks II and III) or submunitions (TLAM-D). TLAM-C has GPS back-up to Tercom and a CEP of 10 m. Tactical Tomahawk from 2004.

SAM: GDC Standard SM-2MR Block IV; command/inertial guidance; semi-active radar homing to 167 km *(90 n miles)*. 2 Lockheed Martin Mk 41 Vertical Launch Systems (VLS) for Tomahawk, Standard and ASROC VLS ❶; 2 magazines; 32 missile tubes forward, 64 aft. 32 Raytheon ESSM (4 quad forward, 4 quad aft) (DDG 85 onwards); semi-active radar homing to 18.5 km *(10 n miles)*. ESSM to be retro-fitted to DDG 79-84.

A/S: Loral ASROC VLA; inertial guidance to 1.6-16.6 km *(1-9 n miles)*; payload Mk 46 Mod 5 Neartip.

Guns: 1 United Defense 5 in *(127 mm)*/54 Mk 45 Mod 2 (DDG 79-80) ❷; 20 rds/min to 23 km *(12.6 n miles)*; weight of shell 32 kg.

United Defense 5 in *(127 mm)*/62 (DDG 81 onwards); 20 or 10 (ERGM) rds/min; GPS guidance to 116.7 km *(63 n miles)*; warhead 72 bomblets; cep 10 m.

2 Hughes 20 mm Vulcan Phalanx 6-barrelled Mk 15 ❸; 4,500 rds/min combined to 1.5 km. Fitted with IR detectors for tracking small craft. To be replaced by ESSM from DDG 85 forward during construction.

Torpedoes: 6—324 mm Mk 32 Mod 14 (2 triple) tubes ❹. Alliant Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg or Alliant/Westinghouse Mk 50; active/passive homing to 15 km *(8.1 n miles)* at 50 kt; warhead 45 kg shaped charge.

Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled fixed Mk 36 Mod 12 ❺; IR flares and chaff to 4 km *(2.2 n miles)*. SLQ-25 Nixie; torpedo decoy. NATO Sea Gnat. SLQ-95 AEB. SLQ-39 chaff buoy.

ESM/ECM: Raytheon SLQ-32(V)3/SLY-2 ❻; intercept and jammer.

Combat data systems: TADIX-B and TADIL-J. CEC. Links 4, 11 and 16. (See Data Systems at front of section.) Link 22 in due course. CDS upgrade for DDG 91.

Weapons control: SWG-3 Mk 37 Tomahawk WCS. Aegis multitarget tracking with Mk 99 Mod 3 MFCS and three Mk 80 illuminators. GWS 34 GFCS (includes Mk 160 Mod 8 computing system and Kollmorgen Mk 46 optronic sight). Singer Librascope Mk 116 FCS for ASW.

Radars: Air search/fire control: RCA SPY-1D phased arrays ❼; 3D; E/F-band.

Surface search: DRS SPS-67(V)3 ❽; G-band.
Navigation: Raytheon SPS-64(V)9; I-band.
Fire control: Three Raytheon/SPG-62 ❾; I/J-band.
Tacan: URN 25 ❿. IFF Mk XII AIMS UPX-29.

Sonars: Lockheed Martin SQQ-89(V)10; underwater combat system with SQS-53C; bow-mounted; active search and attack. Kingfisher; mine detection; active; high frequency. Remote Minehunting System (DDG 92).

Helicopters: 2 LAMPS III SH-60B/F helicopters ⓫.

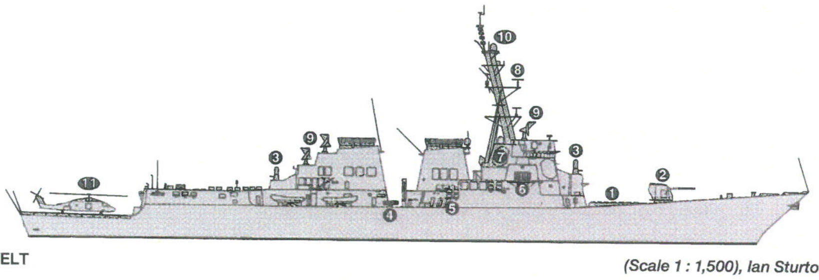
Programmes: DDG 79 was authorised in the FY94 budget. Funding for DDG 80-82 provided in FY95 and DDG 83-84 in FY96 plus partial funding for a third. Balance for DDG 85 plus DDG 86-88 in FY97 and DDG 89-101 in FY98. On 6 March 1998, multi-year contract for six ships and one option (DDG 89) awarded to Ingalls Shipbuilding and contract for six ships awarded to Bath Iron Works. On 1 August 2002, contract awarded to Bath Iron Works for the construction of DDG 102 and on 13 September 2002 a fixed-price multi-year contract awarded to Bath Iron Works (DDGs 104, 106, 108, 109, 111 and 112) and Northrop Grumman Ship Systems (DDGs 103, 105, 107, 110) for the construction of ten ships. Further orders are not expected.

Modernisation: Future planned upgrades include Aegis Baseline 7.1, SPY 1D(V) radar, CEC, Nulka decoys, Remote Minehunting System (to be installed in DDG 92), Integrated Bridge System and Tactical Tomahawk.

Structure: The upgrade from Flight II includes two hangars for embarked helicopters and an extended transom to increase the size of a dual RAST fitted flight deck at the expense of SQR-19 TACTAS. Vertical launchers are increased at each end by three cells. Other changes include the Kingfisher minehunting sonar, a reconfiguration of the SPY-1D arrays and the inclusion of a Track Initiation Processor in the Aegis radar system. Use of fibre optic technology should reduce weight and improve reliability.

Operational: The helicopter carries Penguin and Hellfire missiles. ESSM fired from DDG 86 on 24 July 2002, the first to be fired from a USN ship.

UPDATED

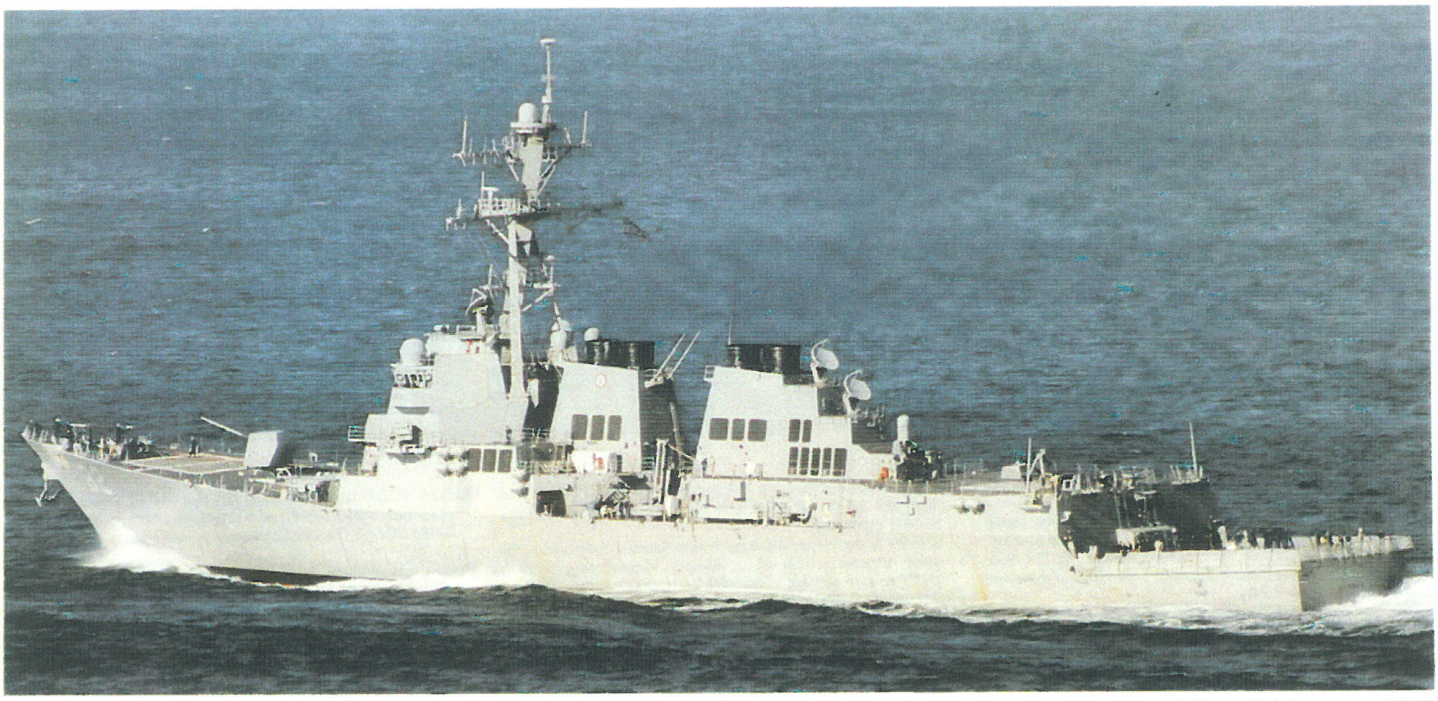


ROOSEVELT

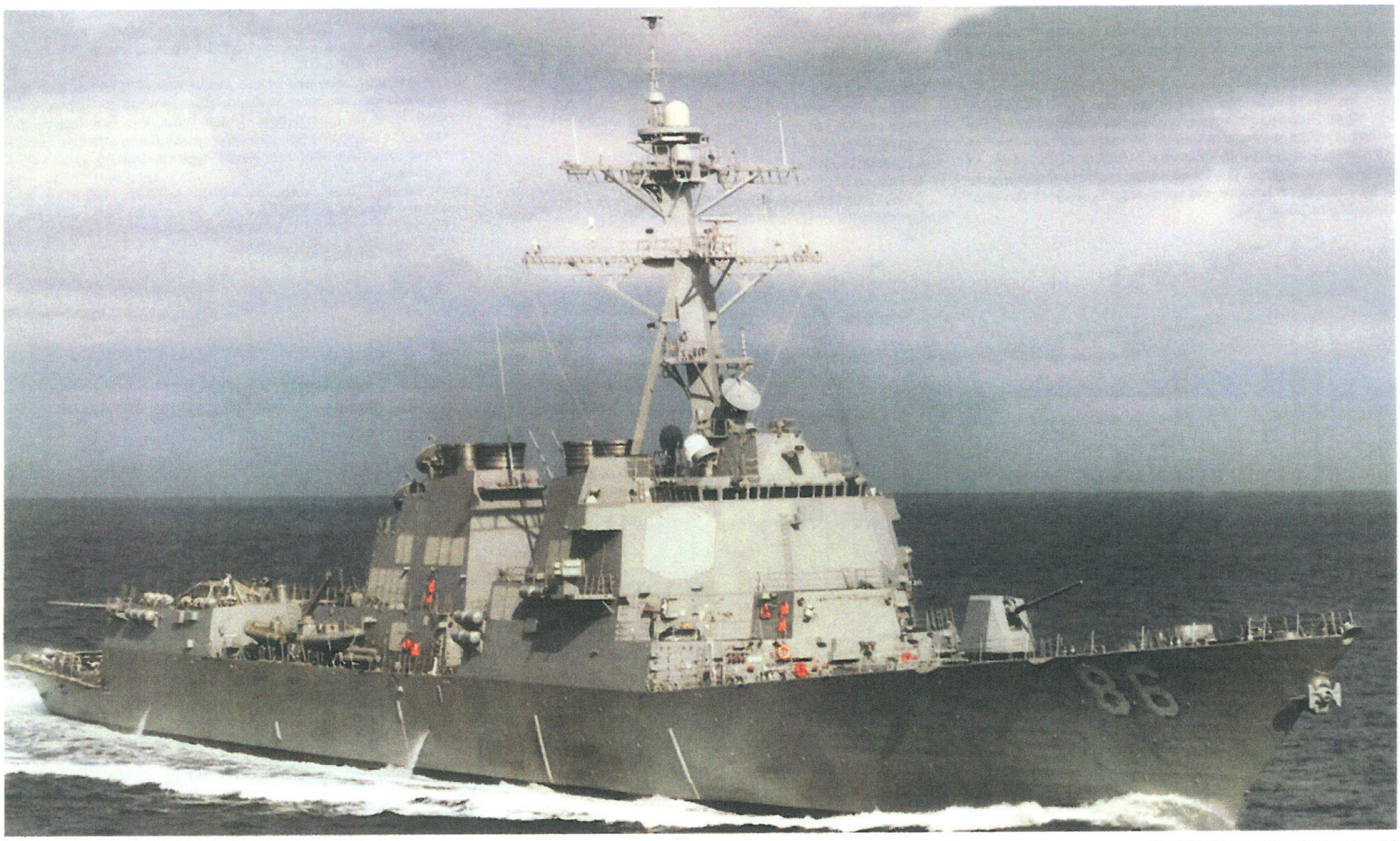
(Scale 1 : 1,500), Ian Sturton / 0106761

ROOSEVELT

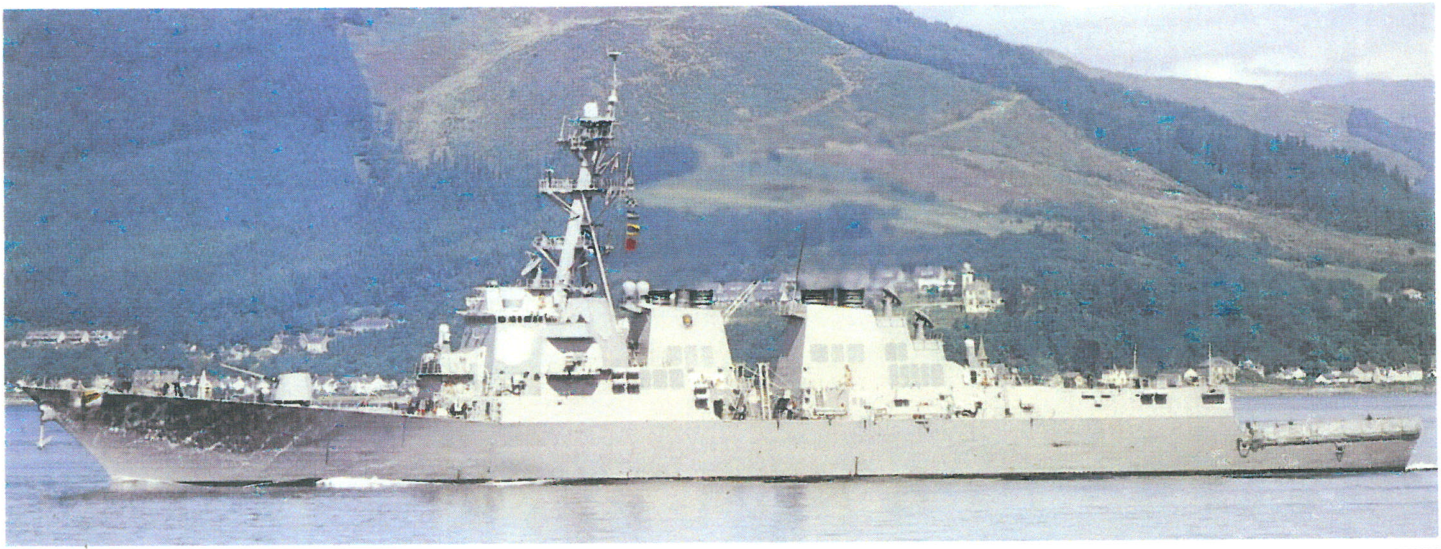
9/2003, H M Steele* / 0572805



LASSEN *5/2003*, Mick Prendergast* / 0572772



SHOUP *2/2002, Ships of the World* / 0530094



BULKELEY *6/2003*, H M Steele* / 0572804

7 SPRUANCE CLASS: DESTROYERS (DDGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*
SPRUANCE	DD 963	Ingalls Shipbuilding	17 Nov 1972	10 Nov 1973	20 Sep 1975	AA
O'BRIEN	DD 975	Ingalls Shipbuilding	9 May 1975	8 July 1976	3 Dec 1977	PA
STUMP	DD 978	Ingalls Shipbuilding	25 Aug 1975	29 Jan 1977	19 Aug 1978	AA
CUSHING	DD 985	Ingalls Shipbuilding	27 Dec 1976	17 June 1978	20 Oct 1979	PA
O'BANNON	DD 987	Ingalls Shipbuilding	21 Feb 1977	25 Sep 1978	15 Dec 1979	AA
THORN	DD 988	Ingalls Shipbuilding	29 Aug 1977	14 Nov 1978	16 Feb 1980	AA
FLETCHER	DD 992	Ingalls Shipbuilding	24 Apr 1978	16 June 1979	12 July 1980	PA

Displacement, tons: 5,770 light; 8,040 full load
Dimensions, feet (metres): 563.2 × 55.1 × 19; 29 (sonar) *(171.7 × 16.8 × 5.8; 8.8)*
Main machinery: 4 GE LM 2500 gas turbines; 86,000 hp *(64.16 MW)* sustained; 2 shafts; cp props
Speed, knots: 33. **Range, miles:** 6,000 at 20 kt
Complement: 319-339 (20 officers)

Missiles: SLCM: GDC Tomahawk; Tercom aided guidance to 1,300 km *(700 n miles)* (TLAM-C and D) or 1,853 km *(1,000 n miles)* (TLAM-C Block III) at 0.7 Mach; warhead 454 kg (TLAM-C) or 347 kg shaped charge (TLAM-C Blocks II and III) or submunitions (TLAM-D). TLAM-C has GPS back-up to Tercom and a CEP of 10 m.

Mk 41 Mod 0 VLS ① with one 61 missile magazine combining 45 Tomahawk and ASROC in some.

8 McDonnell Douglas Harpoon (2 quad) ②; active radar homing to 130 km *(70 n miles)* at 0.9 Mach; warhead 227 kg.

SAM: Raytheon GMLS Mk 29 octuple launcher ③; 24 Sea Sparrow; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg.

GDC RAM quadruple launcher ④; passive IR/anti-radiation homing to 9.6 km *(5.2 n miles)* at 2 Mach; warhead 9.1 kg. Being fitted in 12 of the class.

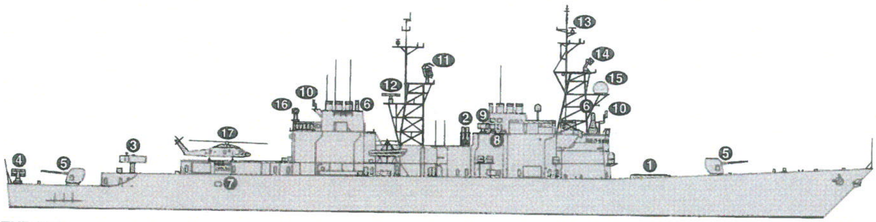
A/S: Loral ASROC VLA can be carried; inertial guidance to 16.6 km *(9 n miles)*; payload Mk 46 Mod 5 Neartip.

Guns: 2 FMC 5 in *(127 mm)*/54 Mk 45 Mod 0/1 ⑤; 20 rds/min to 23 km *(12.6 n miles)* anti-surface; 15 km *(8.2 n miles)* anti-aircraft; weight of shell 32 kg.

2 General Electric/General Dynamics 20 mm/76 6-barrelled Mk 15 Vulcan Phalanx ⑥; 3,000 rds/min (4,500 in Batch 1) combined to 1.5 km.

4—12.7 mm MGs.

Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ⑦. 14 Honeywell Mk 46; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg or Alliant/Westinghouse Mk 50; active/passive to 15 km *(8.1 n miles)* at 50 kt; warhead 45 kg shaped charge. The tubes are inside the superstructure to facilitate maintenance and reloading. Torpedoes are fired through side ports.



OLDENDORF

(Scale 1 : 1,500), Ian Sturton / 0016370

Countermeasures: Decoys: 4 Loral Hycor SRBOC 6-barrelled fixed Mk 36 ⑧; IR flares and chaff to 4 km *(2.2 n miles)*. SLQ-39 chaff buoy.

SLQ-25 Nixie; torpedo decoy. Prairie/Masker hull/blade rate noise suppression system. Remote Minehunting System (RMS) can be carried; endurance 24 hours at 12 kt.

ESM/ECM: SLQ-32(V)2 ⑨; radar warning. Sidekick modification adds jammer and deception system. WLR-1 (in some).

Combat data systems: NTDS with Links 11 and 14. SATCOMS ⑩ SRR-1, WSC-3 (UHF), USC-38 (EHF) (in some). SQQ-28 for LAMPS datalink. SYQ-17 RAIDS (see *Modernisation*) being fitted.

Weapons control: SWG-3 Tomahawk WCS. SWG-1A Harpoon LCS. Mk 116 Mod 7 FCS ASW. Mk 86 Mod 3 GFCS. Mk 91 MFCS. SRQ-4 LAMPS III. SAR-8 IR director (DD 965).

Radars: Air search: Lockheed SPS-40B/C/D (not in DD 997) ⑪; B-band; range 320 km *(175 n miles)*.

Raytheon SPS-49V (DD 997); C/D-band; range 457 km *(250 n miles)*.

Hughes Mk 23 TAS ⑫; D-band.

Surface search: ISC Cardion SPS-55 ⑬; I/J-band.

Navigation: Raytheon SPS-64(V)9; I-band.

Fire control: Lockheed SPG-60 ⑭; I/J-band.

Lockheed SPQ-9A ⑮ or 9B (DD 972); I/J-band.

Raytheon Mk 95 ⑯; I/J-band (for SAM).

Tacan: URN 20 or URN 25 (D 997). IFF Mk XII AIMS UPX-25.

Sonars: SQQ-89(V)6 including GE/Hughes SQS-53B/C; bow-mounted; active search and attack; medium frequency; and Gould SQR-19 (TACTAS); passive towed array.

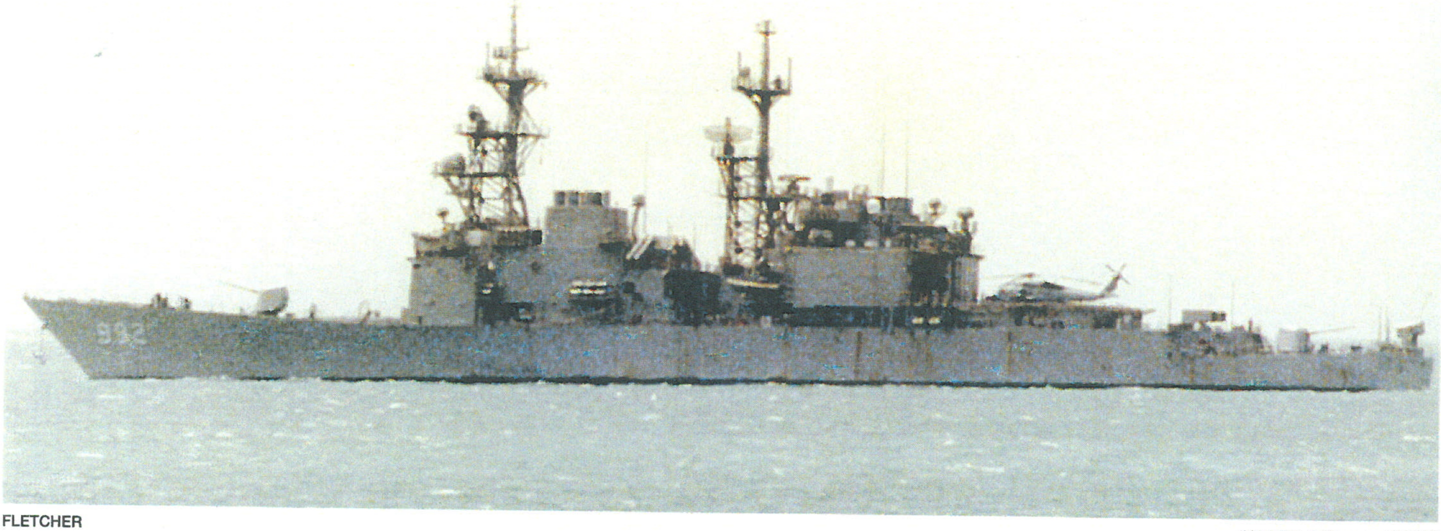
Helicopters: 2 SH-60B LAMPS III ⑰ or SH-2G Seasprite.

Programmes: Funds approved between FY70 and FY78.

Modernisation: Beginning with FY86 overhauls, major improvements have been made. These included the installation of VLS, upgrading of EW to SLQ-32V(2) plus sidekick; LAMPS III and the recovery, assist, secure and traverse system (RAST), the Halon 1301 firefighting system and anti-missile and target acquisition systems. All are capable of launching Standard SM-2MR for control by Aegis fitted vessels. RAIDS (Rapid Anti-ship missile Integrated Defence System) evaluated in DD 963, and installed in all of the class in 1996-97.

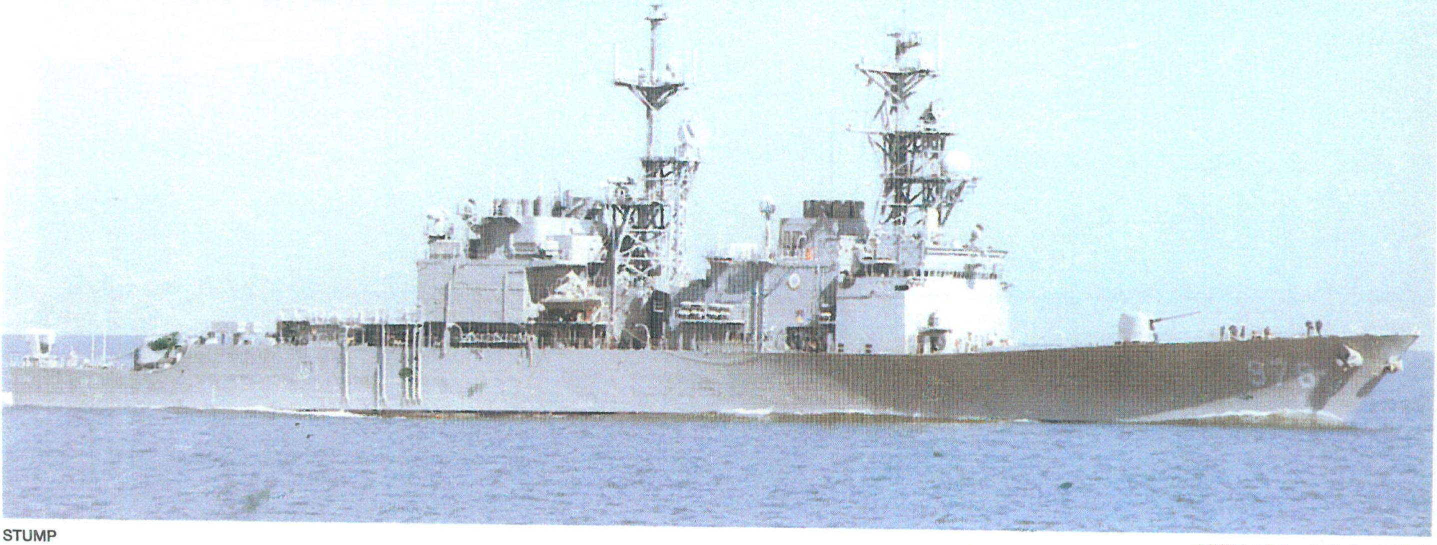
Structure: Extensive use of the modular concept was used to facilitate construction and block modernisation. There is a high level of automation. These were the first large US warships to employ gas-turbine propulsion and advanced self-noise reduction features. Kevlar internal coating in all vital spaces.

Operational: Three ships (DD 992, DD 975, DD 988) to decommission in FY04; three ships (DD 963, DD 985, DD 987) in FY05; DD 978 in FY06. ***UPDATED***



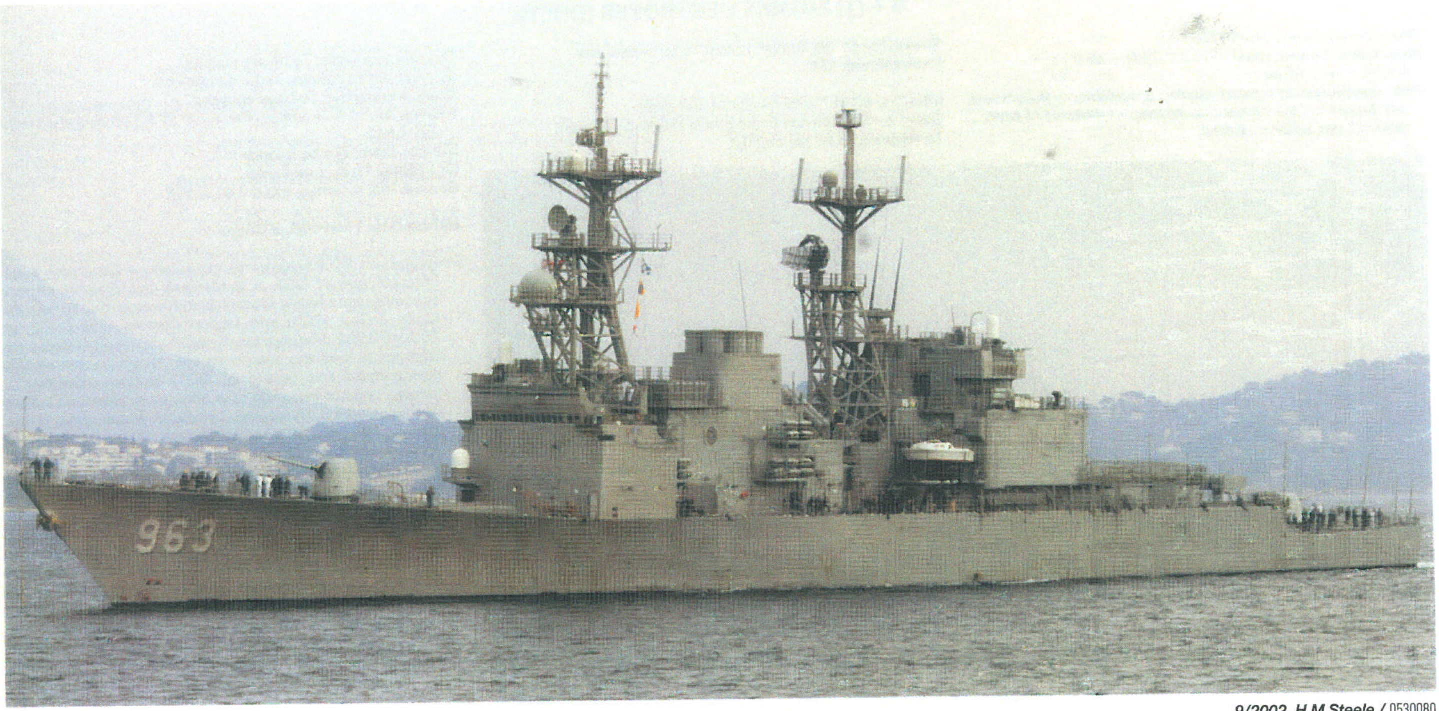
FLETCHER

4/2003, A Sharma* / 0572776



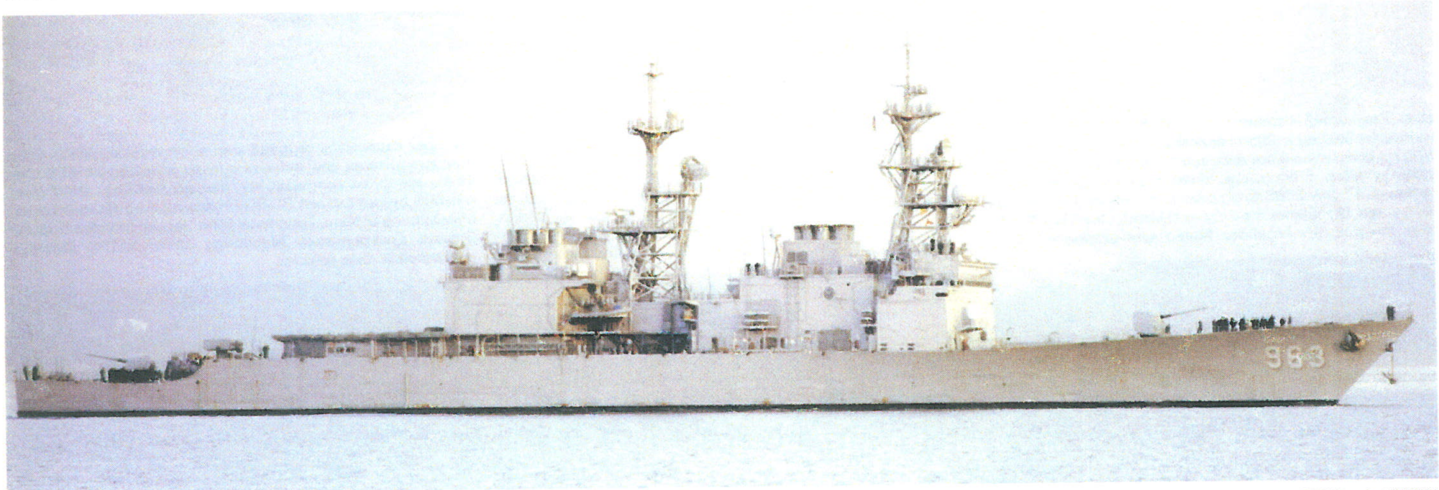
STUMP

9/2002, Winter & Findler / 0529965



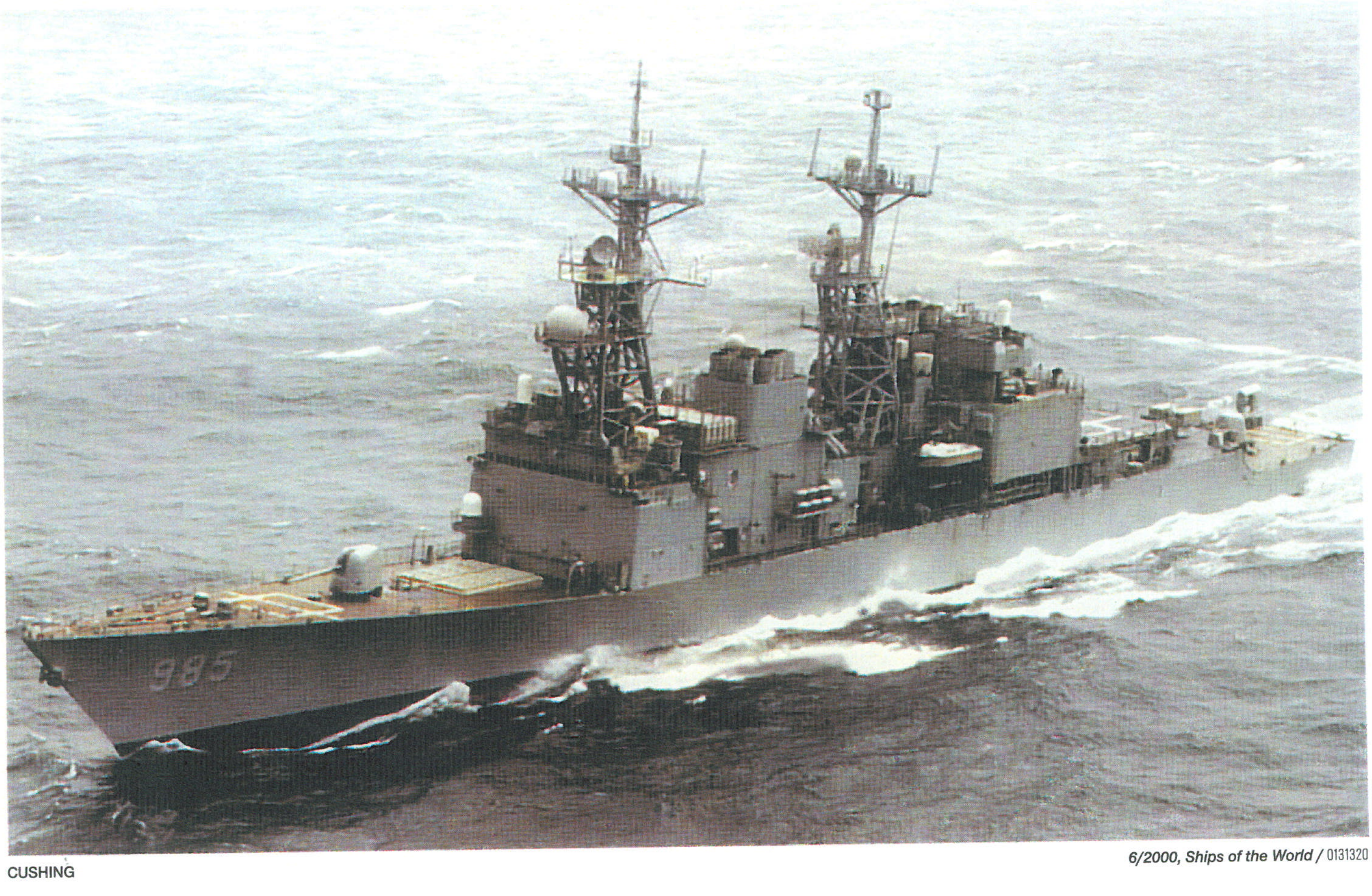
SPRUANCE

9/2002, H M Steele / 0530080



SPRUANCE

9/2003, H M Steele /* 0572803



CUSHING

6/2000, Ships of the World / 0131320

0 + (1) FUTURE DESTROYER (DDGH)

Displacement, tons: 14,064 full load
Dimensions, feet (metres): 600.0 × 79.0 × 28.0 *(182.8 × 24.1 × 8.5)*
Main machinery: Integrated electric propulsion; 2 Rolls-Royce MT 30 gas turbines; 2 permanent magnet motors *(72 MW)*; 2 auxiliary gas turbines *(8 MW)*

Speed, knots: 30. **Range, miles:** To be announced.
Complement: 150

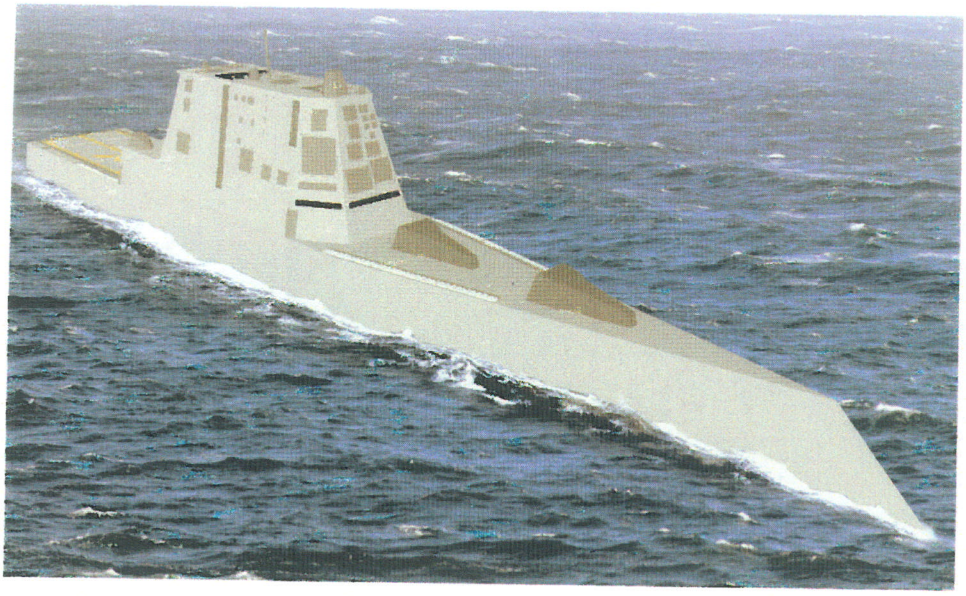
Missiles: 80 VLS cells for SLCM and SAM.
Guns: 2—155 mm advanced gun systems. 2—40 mm.
Torpedoes: To be announced.

Countermeasures: To be announced.
Combat data systems: To be announced.
Weapons control: To be announced.
Radars: Air/surface search: Raytheon SPY-3 phased arrays; 3D; E/F-band.
Surface search: To be announced.
Navigation: To be announced.
Sonars: Hull mounted and towed arrays.

Helicopters: 1 MH-60R. 3 UAVs.

Programmes: DDX programme instituted on November 2001. Principal role of DDX is land-attack but programme also encompasses a family of surface combatants that include the future cruiser (CGX) and Littoral Combat Ship (LCS). On 29 April 2002, Northrop Grumman (Gold Team) awarded the contract to lead the system design, engineering prototype development and testing of DDX. Raytheon Systems is combat systems integrator and other team members include Boeing, General Dynamics, Lockheed Martin and United Defense. Blue team member General Dynamics Bath Iron Works is also performing design and test activities to provide competition in ship construction. Development work is to be completed in 2005 when a contract for construction of the first of class is expected. Initial operating capability is to be achieved in 2013.
Structure: Features of the ship include a wave-piercing 'tumblehome' design, a large block-shaped composite superstructure, within which sensors and antennas are enclosed, shields for 155 mm guns and a peripheral (port and starboard) vertical launch system. Engineering Development Models (EDMs) for key systems include an integrated power system, advanced gun system, integrated undersea warfare suite and whole-ship computing environment.

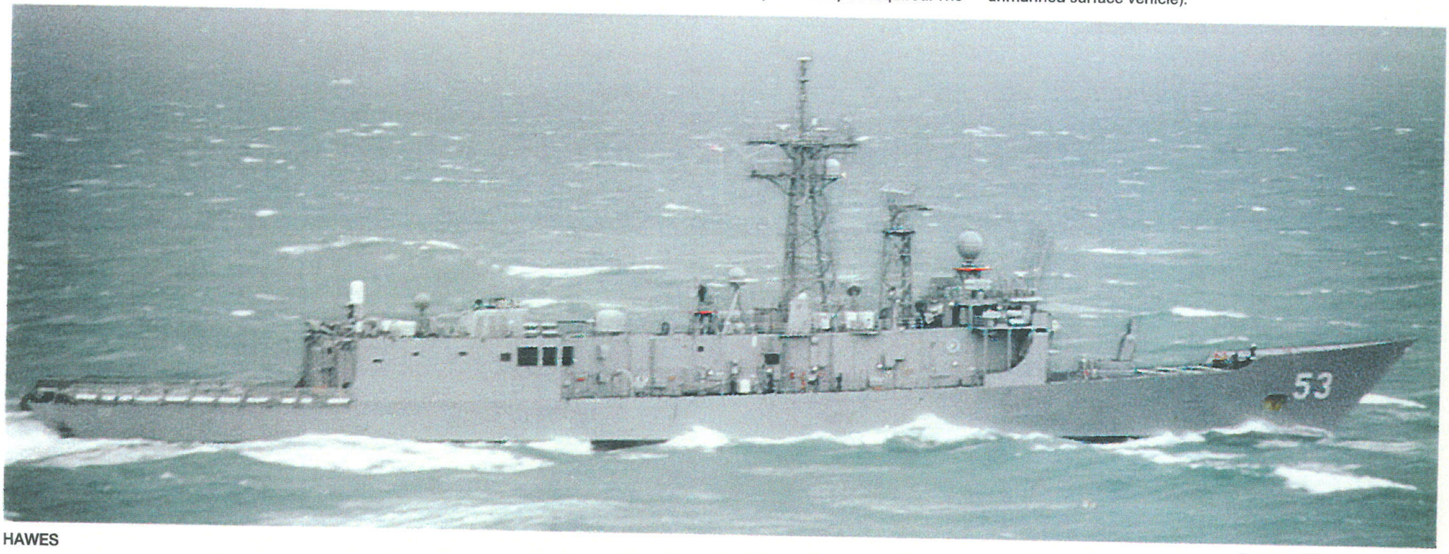
NEW ENTRY



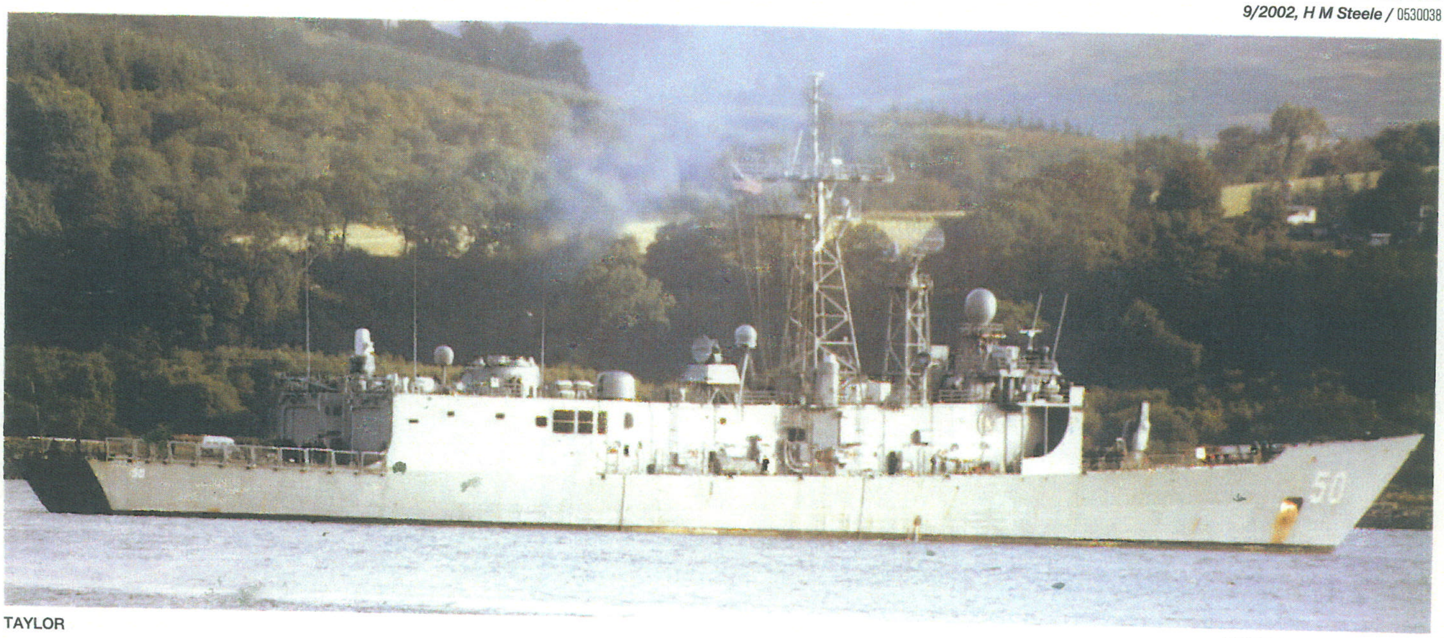
DDX
12/2003, US Navy* / 0572812

FRIGATES

Notes: The Littoral Combat Ship is to be a high-speed ship designed for fighting in littoral or coastal areas. On 8 November 2002, six companies were awarded contracts to conduct ship concept studies. From these, three winning designs were selected on 17 July 2003 to proceed to the Flight 0 preliminary design stage. These were the General Dynamics Bath Iron Works 125 m trimaran, the Lockheed Martin semi-planing monohull and the Raytheon 80 m surface-effects ship (based on 'Skjold' class patrol boat). In May 2004, selection is to be made of one or two designs and contracts awarded to build up to four Flight 0 prototype ships. The first of these is to begin construction in 2005 (delivery 2007). Three Flight I ships, which are expected to be of one design, are to begin construction in 2008 and four in 2009. Up to 60 ships of the class may ultimately be required. The principal capabilities required are: shallow-water ASW, mine countermeasures and defence against attacking small boats. These are to be conducted by 'mission modules': ASW (one MH-60S helicopter; one RQ-80 Firescout UAV); MCM (Remote Minehunting System, Long-term Mine Reconnaissance System, Remote Environmental Monitoring Unit); ASUW (Spartan unmanned surface vehicle).



HAWES
9/2002, H M Steele / 0530038



TAYLOR
9/2003, H M Steele* / 0572802

30 OLIVER HAZARD PERRY CLASS: GUIDED MISSILE FRIGATES (FFGHM)

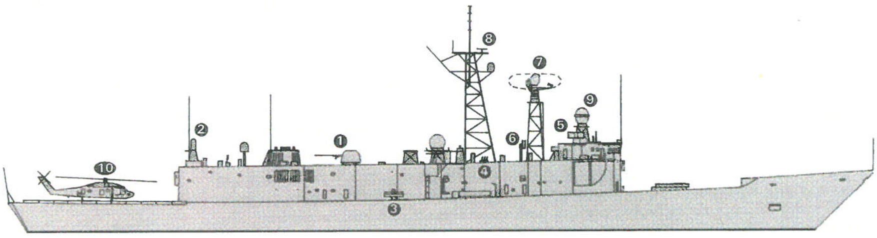
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*
McINERNEY	FFG 8	Bath Iron Works	7 Nov 1977	4 Nov 1978	15 Dec 1979	AA
BOONE	FFG 28	Todd Shipyards, Seattle	27 Mar 1979	16 Jan 1980	15 May 1982	NRF
STEPHEN W GROVES	FFG 29	Bath Iron Works	16 Sep 1980	4 Apr 1981	17 Apr 1982	NRF
JOHN L HALL	FFG 32	Bath Iron Works	5 Jan 1981	24 July 1981	26 June 1982	AA
JARRETT	FFG 33	Todd Shipyards, San Pedro	11 Feb 1981	17 Oct 1981	2 July 1983	PA
UNDERWOOD	FFG 36	Bath Iron Works	3 Aug 1981	6 Feb 1982	29 Jan 1983	AA
CROMMELIN	FFG 37	Todd Shipyards, Seattle	30 May 1980	1 July 1981	18 June 1983	NRF
CURTS	FFG 38	Todd Shipyards, San Pedro	1 July 1981	6 Mar 1982	8 Oct 1983	NRF
DOYLE	FFG 39	Bath Iron Works	16 Nov 1981	22 May 1982	21 May 1983	NRF
HALYBURTON	FFG 40	Todd Shipyards, Seattle	26 Sep 1980	15 Oct 1981	7 Jan 1984	AA
McCLUSKY	FFG 41	Todd Shipyards, San Pedro	21 Oct 1981	18 Sep 1982	10 Dec 1983	NRF
KLAKRING	FFG 42	Bath Iron Works	19 Feb 1982	18 Sep 1982	20 Aug 1983	NRF
THACH	FFG 43	Todd Shipyards, San Pedro	10 Mar 1982	18 Dec 1982	17 Mar 1984	PA
De WERT	FFG 45	Bath Iron Works	14 June 1982	18 Dec 1982	19 Nov 1983	AA
RENTZ	FFG 46	Todd Shipyards, San Pedro	18 Sep 1982	16 July 1983	30 June 1984	PA
NICHOLAS	FFG 47	Bath Iron Works	27 Sep 1982	23 Apr 1983	10 Mar 1984	AA
VANDEGRIFT	FFG 48	Todd Shipyards, Seattle	13 Oct 1981	15 Oct 1982	24 Nov 1984	PA
ROBERT G BRADLEY	FFG 49	Bath Iron Works	28 Dec 1982	13 Aug 1983	11 Aug 1984	AA
TAYLOR	FFG 50	Bath Iron Works	5 May 1983	5 Nov 1983	1 Dec 1984	AA
GARY	FFG 51	Todd Shipyards, San Pedro	18 Dec 1982	19 Nov 1983	17 Nov 1984	PA
CARR	FFG 52	Todd Shipyards, Seattle	26 Mar 1982	26 Feb 1983	27 July 1985	AA
HAWES	FFG 53	Bath Iron Works	22 Aug 1983	18 Feb 1984	9 Feb 1985	AA
FORD	FFG 54	Todd Shipyards, San Pedro	16 July 1983	23 June 1984	29 June 1985	PA
ELROD	FFG 55	Bath Iron Works	21 Nov 1983	12 May 1984	6 June 1985	AA
SIMPSON	FFG 56	Bath Iron Works	27 Feb 1984	21 Aug 1984	9 Nov 1985	NRF
REUBEN JAMES	FFG 57	Todd Shipyards, San Pedro	19 Nov 1983	8 Feb 1985	22 Mar 1986	PA
SAMUEL B ROBERTS	FFG 58	Bath Iron Works	21 May 1984	8 Dec 1984	12 Apr 1986	AA
KAUFFMAN	FFG 59	Bath Iron Works	8 Apr 1985	29 Mar 1986	21 Feb 1987	AA
RODNEY M DAVIS	FFG 60	Todd Shipyards, San Pedro	8 Feb 1985	11 Jan 1986	9 May 1987	NRF
INGRAHAM	FFG 61	Todd Shipyards, San Pedro	30 Mar 1987	25 June 1988	5 Aug 1989	PA

Displacement, tons: 2,750 light; 3,638 (FFG 33); 4,100 full load
Dimensions, feet (metres): 445 (FFG 33); 453 × 45 × 14.8; 24.5 (sonar)
(135.6; 138.1 × 13.7 × 4.5; 7.5)
Main machinery: 2 GE LM 2500 gas turbines; 41,000 hp *(30.59 MW)* sustained; 1 shaft; cp prop
2 auxiliary retractable props; 650 hp *(484 kW)*
Speed, knots: 29. **Range, miles:** 4,500 at 20 kt
Complement: 200 (15 officers) including 19 aircrew

Guns: 1 OTO Melara 3 in *(76 mm)*/62 Mk 75 ❶; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg.
1 General Electric/General Dynamics 20 mm/76 6-barrelled Mk 15 Vulcan Phalanx ❷; 3,000 rds/min (4,500 in Block 1) combined to 1.5 km. Block 1B with anti-surface capability.
2 Boeing 25 mm Mk 38 guns can be fitted amidships. 4—12.7 mm MGs.
Torpedoes: 6—324 mm Mk 32 (2 triple) tubes ❸. 24 Honeywell Mk 46 Mod 5; anti-submarine; active/passive homing to 11 km *(5.9 n miles)* at 40 kt; warhead 44 kg or Alliant/Westinghouse Mk 50; active/passive homing to 15 km *(8.1 n miles)* at 50 kt; warhead 45 kg shaped charge.
Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled fixed Mk 36 ❹; IR flares and chaff to 4 km *(2.2 n miles)*.
T-Mk 6 Fanfare/SLQ-25 Nixie; torpedo decoy.
ESM/ECM: SLQ-32(V)2 ❺; radar warning. Sidekick modification adds jammer and deception system. Nulka decoy system from 2004.
Combat data systems: NTDS with Link 11 and 14. Link 14 only (NRF ships). SATCOM ❻ SRR-1, WSC-3 (UHF). SQQ-28 for LAMPS III datalink.
Weapons control: Mk 92 (Mod 4 or Mod 6 (FFG 61 and during modernisation in 11 others of the class)), WCS with CAS (Combined Antenna System). The Mk 92 is the US version of the Signaal WM28 system. SYS 2(V)2 IADT (FFG 61 and in 11 others of the class – see *Modernisation*). SRQ-4 for LAMPS III, SKR-4A for LAMPS I.
Radars: Air search: Raytheon SPS-49(V)4 or 5 (FFG 61 and during modernisation of others) ❼; C/D-band; range 457 km *(250 n miles)*.
Surface search: ISC Cardion SPS-55 ❽; I-band.
Fire control: Sperry Mk 92 (Signaal WM28) ❾; I/J-band.
Navigation: Furuno; I-band.
Tacan: URN 25. IFF Mk XII AIMS UPX-29.
Sonars: SQQ 89(V)2 (Raytheon SQS 56 and Gould SQR 19); hull-mounted active search and attack; medium frequency and passive towed array; very low frequency.

Helicopters: 2 SH-60B LAMPS III ❿ in Flight III/IV and certified ships.

Programmes: The lead ship was authorised in FY73.



RENTZ *(Scale 1 : 1,200), Ian Sturton* / 0572737

THACH *10/2003*, Frank Findler* / 0572777

Modernisation: To accommodate the helicopter landing system (RAST), the overall length of the ship was increased by 8 ft *(2.4 m)* by increasing the angle of the ship's transom, between the waterline and the fantail, from virtually straight up to a 45° angle outwards. LAMPS III support facilities and RAST were fitted in all ships authorised from FFG 36 onwards, during construction and have been backfitted to all. The remainder can operate this aircraft without landing facilities. FFG 61 has much improved Combat Data and Fire-Control equipment which has been retrofitted in FFG 36, 47, 48, 50-55, 57 and 59. SQS-56 is modified for mine detection. Block 1B Phalanx fitted first in FFG 36 in October 1999. This has a capability against high speed surface craft at short range. Engineering and platform improvements are to be made to 24 ships from 2003. The Nulka decoy system is to be fitted from 2004.
Structure: The original single hangar has been changed to two adjacent hangars. Provided with 19 mm Kevlar armour protection over vital spaces. 25 mm guns can be fitted for some operational deployments.
Operational: Ships of this class were the first Navy experience in implementing a design-to-cost acquisition concept. Many of their limitations were manifest during the intense fires which resulted from *Stark* (FFG 31) being struck by two Exocet missiles in the Persian Gulf 17 May 1987. Since then there have been many improvements in firefighting and damage control doctrine and procedures and equipment to deal with residual missile propellant-induced fires. On 14 April 1988, *Samuel B Roberts* (FFG 58), was mined in the Gulf. Penguin SSM can be carried in some LAMPS III helicopters. Two of the class are based at Yokosuka. Nine ships are assigned to the Combatant Naval Reserve Force. SAM and SSM systems removed by the end of FY04.
Sales: Australia bought four of the class and has built two more. Spain has six and Taiwan eight. Transfers include six to Turkey plus one for spares, four to Egypt, one to Bahrain and one to Poland. In 2002, one sold to Turkey and one transferred to Poland. FFG 15 to Turkey in April 2003. Further transfers are likely. ***UPDATED***

DOYLE *8/2003*, Derek Fox* / 0572778

SHIPBORNE AIRCRAFT (FRONT LINE)

Notes: (1) Numbers given are for 1 January 2004.
(2) **Joint Strike Fighter:** The Joint Strike Fighter programme is a family of aircraft to replace platforms in the US Navy, Air Force and Marine Corps. Now known as F-35, the conventional (angled deck) take off and landing (CTOL) variant (F-35B) will complement the US Navy's F/A-18E/F and replace the A6 Intruder. The Short Take Off and Vertical Landing (STOVL) variant (F-35C) will replace the Marine Corps' AV-8B and F/A-18A/C/D. The US government awarded the US$19 billion contract for the Systems Development and Demonstration phase on 26 October 2001 to the industry team of Lockheed Martin, Northrop Grumman and BAE Systems. First delivery of operational aircraft is expected in 2008. Pratt and Whitney was awarded a US$4 billion contract to develop an engine to compete in production with that developed by General Electric and Rolls Royce.
(3) **Electronic Warfare:** EA-6B 'Prowler' is to be replaced from 2009 by EA-18G. Four aircraft are to be procured in FY06, 12 in FY07, 18 in FY08 and 12 in FY09. A total of 90 aircraft is planned.
(4) **Unmanned Aircraft:** The UAV strategy has been given significantly increased impetus since operations in Afghanistan in 2001. It is envisaged that a family of UAVs will be required to meet three principal capability requirements:

(a) Tactical Surveillance and Targeting: currently provided by 'Pioneer' which is to be transferred to the USMC while future requirements are developed.

(b) Long Dwell/Stand-off Intelligence Surveillance and Reconnaissance (ISR). Current development work on Unmanned Combat Air Vehicles (UCAV) is expected to be taken forward into a full acquisition programme with an ISR capability expected in about 2015.

(c) Penetrating Surveillance/Suppression of Enemy Air Defences (SEAD): Initial Operational Capability for a full weapons capability is not expected until 2020.
(5) **Tacair Integration:** The Navy and Marine Corps signed an agreement in August 2002 to integrate strike fighter forces. The aim is to increase operational flexibility, introduce training efficiencies and reduce the overall Joint Strike Fighter (JSF) acquisition programme. The integration programme, which involves Navy and Marine pilots training, deploying and fighting side by side, is being phased in from 2004. Marine fighter squadrons of F/A-18s embedded in carrier air wings are to grow from four to ten, one for each existing air wing (which contain eight to nine squadrons) while three squadrons of Navy F/A-18s are to be assigned to Marine Expeditionary Forces. As a result, the overall number of squadrons is to drop by five (three Navy active squadrons, one Navy reserve squadron and one Marine Corps reserve squadron) from 64 to 59. This measure is to achieve savings of 497 aircraft between 2004-2012; the number of JSF required is to fall from 1,089 down to 680.
(6) **Advanced Hawkeye:** A contract was awarded Northrop Grumman Corporation in August 2003 for the Systems Development and Demonstration (SD&D) phase of the Advanced Hawkeye (AHE) programme. This began in 2003 and is to continue until 2013. The first developmental AHE aircraft is scheduled for delivery in 2007, followed by Initial Operating Capability (IOC) in FY11. AHE will use the Northrop Grumman-built E-2C Hawkeye 2000 configuration as a baseline but the existing AN/APS-145 radar system will be replaced along with other aircraft systems components that enable the radar upgrade.

Numbers/Type: 33/62/36 Grumman F-14A/B/D Tomcat.
Operational speed: 1,342 kt *(2,485 km/h)*.
Service ceiling: 60,000 ft *(18,283 m)*.
Range: 2,000 n miles *(3,704 km)*.
Role/Weapon systems: Fleet strike fighter aircraft for long range air defense, precision strike and reconnaissance roles. Sensors: AWG-9 (A/B) or APG-71 (D). ALQ-126 jammer (A/B) or ALQ-165 (D). ASN-92 nav (A) embedded GPS-INS (B) or ASN-139/MAGR (D), LANTIRN (all models); ALR-67 (all models); IRST and JTIDS(D). Weapons: two AIM-9, one AIM-54, one AIM-7, two GBU, 20 mm (strike). Two AIM-54, two AIM-7, two AIM-9, 20 mm (OCA/DCA). Two AIM-7, two AIM-9, 20 mm (recce).

UPDATED

F-14A *7/2003*, Hachiro Nakai* / 0572784

Numbers/Type: 169/30/400/139 McDonnell Douglas F/A-18A/B/C/D Hornet.
Operational speed: 1,032 kt *(1,910 km/h)*.
Service ceiling: 50,000 ft *(15,240 m)*.
Range: 1,000 n miles *(1,850 km)*.
Role/Weapon systems: Strike interdictor (VFA) for USN/USMC air groups. Some are used for EW support with ALQ-167 jammers. Sensors: ESM: Litton ALR 67(V)2, ALQ 165 ASPJ jammer (18C/D), ALQ-126B jammer, APG-65 or APG-73 radar, AAS-38 FLIR, AAR-50 Nav FLIR, ASQ-173 tracker. Weapons: ASV; four Harpoon or SLAM (18D) or AGM-88 HARM (18D) missiles. Strike; up to 7.7 tons of bombs (or LGM). AD; one 20 mm Vulcan cannon, nine AIM-7/AIM-9 missiles. Typical ASV load might include 20 mm gun, 7.7 ton bombs including AGM 154A JSOW, two AIM-9 missiles. Typical AAW load might include 20 mm gun, four AIM-7, two AIM-9 missiles. 18C/D includes AIM-120 AMRAAM and AGM-65 Maverick or AGM 62 Walleye capability.

UPDATED

F/A-18C *7/2003*, Hachiro Nakai* / 0572780

Numbers/Type: 70/83 Boeing F/A-18E/F Super Hornet.
Operational speed: 930 kt *(1,721 km/h)*.
Service ceiling: 50,000 ft *(15,240 m)*.
Range: 1,320 n miles *(2,376 km)*.
Role/Weapon systems: Strike interdictor for USN. First one rolled out in September 1995. First sea trials January 1997. Initial deployment to CVN 72 in July 2002. First 12 production aircraft ordered in FY97. Sensors: APG-73 radar, ALR-67(V)3 RWR. ECM: ALQ-165 ASPJ, ALQ-214 RFCM, towed decoys. Weapons: 11 wing stations for 8,680 kg of weapons (same armament as C/D) plus 20 mm guns.

UPDATED

F/A-18E *7/2000, H M Steele* / 0106776

Numbers/Type: 24/112/23 Boeing/British Aerospace AV-8B/AV-8B II/TAV-8B Harrier II.
Operational speed: 562 kt *(1,041 km/h)*.
Service ceiling: 50,000 ft *(15,240 m)*.
Range: 800 n miles *(1,480 km)*.
Role/Weapon systems: CAS (VMA) for USMC operational from 1985. A total of 74 AV-8B Plus conversions scheduled to complete in 2002. Sensors: FLIR, laser spot tracker and ECM; Litton ALR-67 ESM; APG-65 radar (AV-8B II Plus). Weapons: Strike; up to 4.2 tons of 'iron' bombs or Paveway II LGM, AGM-62 Walleye or AGM-65 Maverick. Self-defence; one GAU-12/U 25 mm cannon and four AIM-9L Sidewinder.

UPDATED

AV-8B *3/1999, M Declerck* / 0084115

Numbers/Type: 101 Lockheed S-3B Viking/Shadow.
Operational speed: 450 kt *(834 km/h)*.
Service ceiling: 35,000 ft *(10,670 m)*.
Range: 2,000 n miles *(3,706 km)*.
Role/Weapon systems: Originally configured as carrier-borne ASW aircraft. ASW capability removed since 1998 and primary roles are reconnaissance and in-flight refuelling. Sensors: APS-137(V)1 radar; APN-200 radar, FLIR, OR-263AA, ESM: ALR-76; ECM ALE 47; ALE 39 chaff. Weapons: ASV; two Harpoon Block 1C; mines.

UPDATED

S-3B *5/2003*, Hachiro Nakai* / 0572783

Numbers/Type: 120 Grumman EA-6B Prowler.
Operational speed: 566 kt *(1,048 km/h)*.
Service ceiling: 41,200 ft *(12,550 m)*.
Range: 955 n miles *(1,769 km)*.
Role/Weapon systems: EW and jamming aircraft (VAQ) to accompany strikes and armed reconnaissance. Block 89A avionics/computer upgrades first delivered 2001 and continuing. All aircraft to be modernised. Further update (ICAP III) planned with first in service in 2005. Sensors: APS-130 radar; ALQ-99, USQ-113 jammers. Weapons: AGM-88 HARM anti-radiation missile capable.

UPDATED

EA-6B *5/2003*, Hachiro Nakai* / 0572782

Numbers/Type: 71 Grumman E-2C Hawkeye.
Operational speed: 323 kt *(598 km/h).*
Service ceiling: 37,000 ft *(11,278 m).*
Range: 1,540 n miles *(2,852 km).*
Role/Weapon systems: Used for direction of AD and strike operations; (VAW); 16 Group II upgrades from 1995-2000 included APS 145 radar and Link 16. Sensors: ESM: ALR-73 PDS; Airborne tactical data system with Links 4A, 11 or 16; CEC from 2000. APS-125/138/145 radar; Mk XII IFF. Weapons: Unarmed. It is planned to buy five Hawkeye 2000 aircraft per year 2002-2003. A total of 21 is planned.
UPDATED

E-2C *5/2003*, Hachiro Nakai* / 0572781

Numbers/Type: 12 Bell Boeing MV-22 Osprey.
Operational speed: 270 kt *(500 km/h).*
Service ceiling: 25,000 ft *(7,620 m).*
Range: 2,108 n miles *(2,110 km).*
Role/Weapon systems: Replacement for CH-46 and CH-53D assault/support for Marines (MV) and strike rescue for the Navy. Operational evaluation completed in October 2000. Subject to successful flight testing, nine aircraft to be procured in FY04 and 117 from FY05 to FY09. Fleet of 360 (MV) and 48 (HV) projected. Sensors: AAR-47 ESM; AN/AAQ-27 FLIR; APR 39A(V)2. Weapons: 12.7 mm MG or self-defence gun. Flight operations suspended after fatal accident in December 2000. Following engineering changes, flight operations resumed in March 2002.
UPDATED

MV-22 *11/2000*, US Navy* / 0094123

Numbers/Type: 149 Sikorsky SH-60B Seahawk (LAMPS Mk III).
Operational speed: 145 kt *(268 km/h).*
Service ceiling: 10,000 ft *(3,050 m).*
Range: 450 n miles *(833 km).*
Role/Weapon systems: LAMPS Mk III is airborne platform for ASW and ASUW: operated from cruisers, destroyers and frigates. To be replaced by MH-60R. Sensors: APS-124 search radar, AAS-44 FLIR with laser designator, ASQ-81(V) MAD, 25 sonobuoys, ALQ-142 ESM, ALQ-144 IR suppressor and ALE-39 chaff and flare dispenser. Weapons: ASW; three Mk 46 or Mk 50 torpedoes. ASUW; one Penguin Mk 2 Mod 7 AGM-119B missile, one 7.62 mm MG M60 or 12.7 mm MG, AGM-114B/K Hellfire missile (87 SH-60B from 1998).
UPDATED

SH-60B *1/2001, Darren Yates, RAN* / 0131323

Numbers/Type: 6 Sikorsky MH-60R Seahawk.
Operational speed: 145 kt *(268 km/h).*
Service ceiling: 10,000 ft *(3,050 m).*
Range: 450 n miles *(833 km).*
Role/Weapon systems: The plan to convert the SH-60B/F fleet to SH-60R configuration was dropped in 2001 in favour of the MH-60R which is to be the future tactical helicopter operated from carriers, cruisers, destroyers and frigates to enter front-line service in 2006. Sensors: Telephonics APS-147 radar, Raytheon AQS-22 ALFS, UYS-2A acoustic processor, ALQ-210 ESM, Raytheon AAS-44 FLIR/laser designator, Ku-band datalink. Weapons: ASW: three Mk 46/50/54 torpedoes. ASUW: one AGM-114B/K Hellfire missile, one 7.62 mm MG M60 or 12.7 mm MG.
UPDATED

MH-60R *12/2003*, Lockheed Martin* / 0111939

Numbers/Type: 73 Sikorsky SH-60F Seahawk (CV).
Operational speed: 145 kt *(268 km/h).*
Service ceiling: 10,000 ft *(3,050 m).*
Range: 600 n miles *(1,111 km).*
Role/Weapon systems: Derivation of SH-60B that replaced SH-3H Sea King to provide close-in ASW protection to Carrier Battle Groups. First deployed in *Nimitz* 1991. Sonar: AQS-13F dipping sonar; ASQ-81 (V) MAD; UYS-2 acoustic processor; 25 sonobuoys. Weapons: three Mk 46/54 torpedoes.
UPDATED

SH-60F *8/2002, A Campanera i Rovira* / 0529966

Numbers/Type: 39 Sikorsky HH-60H Seahawk.
Operational speed: 147 kt *(272 km/h).*
Service ceiling: 10,000 ft *(3,050 m).*
Range: 500 n miles *(926 km).*
Role/Weapon systems: Strike, special warfare support and SAR derivative (HCS) of the SH-60F. To be replaced by MH-60S. Sensors: APR-39A radar, AVR-2 LWR and AA 47 MAW, FLIR, ALE-47 chaff dispenser, ALQ-144 ECM. Weapons: ASV; Hellfire AGM-114; M-240 gun; two 7.62 mm MGs. Can deploy eight SEAL to a range of 200 n miles.
UPDATED

HH-60H *9/2000, A Sharma* / 0106780

Numbers/Type: 52 Sikorsky MH-60S Seahawk.
Operational speed: 135 kt *(250 km/h).*
Service ceiling: 10,000 ft *(3,050 m).*
Range: 400 n miles *(741 km).*
Role/Weapon systems: Derived from the SH-60 as a combat support helicopter to replace CH-46, AH-1, UH-3 and HH-60H in replenishment, armed helicopter, CSAR and Medevac roles. MH-60S will also provide an airborne mine countermeasures capability from 2005. Approximately 271 are required. First two delivered for operational testing in late 1999. Fitted with the same external stores system as the Army Blackhawk.
UPDATED

MH-60S *12/1999, Sikorsky* / 0084117

Numbers/Type: 50 Sikorsky UH-3H Sea King.
Operational speed: 144 kt *(267 km/h).*
Service ceiling: 10,000 ft *(3,050 m).*
Range: 630 n miles *(1,166 km).*
Role/Weapon systems: Used for liaison and SAR tasks having been replaced in CV service by SH-60F. Sensors: ALR 606B ESM.

UPDATED

UH-3H *3/2002, Michael Nitz* / 0530016

Numbers/Type: 24/3/226/1 Boeing HH-46D/CH-46D/CH-46E/UH-46D Sea Knight.
Operational speed: 137 kt *(254 km/h).*
Service ceiling: 8,500 ft *(2,590 m).*
Range: 180 n miles *(338 km).*
Role/Weapon systems: Support/assault (HMM) for 18 Marines and resupply (USN) helicopter. To be replaced by V-22 in due course. Can lift 1.3 or 4.5 tons in a cargo net or sling. Sensors: None. Weapons: Unarmed.

UPDATED

CH-46D *7/2000, Hachiro Nakai* / 0106781

Numbers/Type: 148 Sikorsky CH-53E Super Stallion.
Operational speed: 170 kt *(315 km/h).*
Service ceiling: 18,500 ft *(5,640 m).*
Range: 1,000 n miles *(1,850 km).*
Role/Weapon systems: Uprated, three-engined version of Sea Stallion (MMH) with heavy lift (USN) and logistics (USMC) roles. Carries 55 Marines. Sensors: None. Weapons: Up to three 12.7 mm machine guns.

UPDATED

CH-53E *8/2000, US Navy* / 0106784

Numbers/Type: 40 Sikorsky CH-53D Sea Stallion.
Operational speed: 130 kt *(241 km/h).*
Service ceiling: 21,000 ft *(6,400 m).*
Range: 540 n miles *(1,000 km).*
Role/Weapon systems: Assault, support and transport helicopters (MMH); can carry 38 Marines. Sensors: None. Weapons: Up to three 12.7 mm machine guns.

UPDATED

CH-53D *8/1999, US Navy* / 0106783

Numbers/Type: 37 Sikorsky MH-53E Sea Dragon.
Operational speed: 170 kt *(315 km/h).*
Service ceiling: 18,500 ft *(5,640 m).*
Range: 1,000 n miles *(1,850 km).*
Role/Weapon systems: Three-engined AMCM helicopter (HM) similar to Super Stallion; tows ALQ-166 Mod 4 MCM sweep equipment; self-deployed if necessary. Sensors: Northrop Grumman AQS-14A or AQS-20 (in due course) dipping sonar. Weapons: Two 12.7 mm guns for self-defence.

UPDATED

MH-53E *5/1999, US Navy* / 0106785

Numbers/Type: 190 Bell AH-1W Super Cobra.
Operational speed: 149 kt *(277 km/h).*
Service ceiling: 12,200 ft *(3,718 m).*
Range: 317 n miles *(587 km).*
Role/Weapon systems: Close support helicopter (HMLA) with own air-to-air capability. Four-bladed rotor upgrade to be fitted from 2004 to improve speed, range and lift. Sensors: NTS (laser and FLIR nightsight) retrofitted from 1993 at the rate of 24 aircraft per year. Weapons: Strike/assault; one triple 20 mm cannon, eight TOW or Hellfire missiles and gun. AAW; two AIM-9L Sidewinder missiles.

UPDATED

AH-1W *6/2001, Jürg Kursener* / 0131312

Numbers/Type: 9/27 Bell UH-1N/HH-1N Iroquois. Twin Huey.
Operational speed: 110 kt *(204 km/h).*
Service ceiling: 15,000 ft *(4,570 m).*
Range: 230 n miles *(426 km).*
Role/Weapon systems: Utility of C^2 and support and logistics helicopter (HMLA) for USMC operations afloat and ashore. Can carry 10 marines. Four-bladed upgrade to be fitted from 2004 to improve speed, range and lift. Sensors: None. Weapons: Can be armed with 12.7 mm or 7.62 mm machine guns and 2.75 in rockets.

UPDATED

UH-1N *5/1999, A Sharma* / 0084120

Numbers/Type: 32 RQ-2 Pioneer UAV.
Operational speed: 65 kt *(120 km/h)*.
Service ceiling: 15,000 ft *(4,570 m)*.
Range: 200 n miles *(370 km)*.
Role/Weapon systems: Two systems in service with USMC UAV squadrons. One in service for training. Sensors: Optronic surveillance with Link terminal.

UPDATED

RQ-2 0106054

Numbers/Type: 6 Northrop Grumman RQ-8A Fire Scout UAV.
Operational speed: 104 kt *(193 km/h)*.
Service ceiling: 20,000 ft *(6,094 m)*.
Range: 110 n miles *(205 km)*.
Role/Weapon systems: Six in service includes one prototype, two in EMD and three in LRIP. Selected in February 2000 as the next generation UAV but full production suspended until UAV strategy has been further developed. A candidate for the LCS. One system comprising three air vehicles with electro-optical/infra-red/laser designator range-finder payloads and two control stations in development. Endurance is over six hours. Will operate from any air capable ship as well as from confined land areas.

UPDATED

RQ-8A *2000, Northrop Grumman* / 0109059

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: (1) There are also 32/12 Lockheed KC-130F/R Hercules tankers.
(2) **Multi-mission Maritime Aircraft (MMA):** Boeing (with a marinised version of the 737-700 airliner) and Lockheed Martin (with a new build version of the P-3C) are competition for the MMA programme. This is to replace the inventory of P-3C Orion maritime aircraft and EP-C3 Aries Sigint aircraft with two variants of aircraft. System development and demonstration of the winning option is planned for FY04 with a view to starting production in FY08 to achieve an interim operating capability in 2013.

Numbers/Type: 11 Lockheed EP-3E Aries.
Operational speed: 411 kt *(761 km/h)*.
Service ceiling: 28,300 ft *(8,625 m)*.
Range: 4,000 n miles *(7,410 km)*.
Role/Weapon systems: Electronic warfare and intelligence gathering aircraft (VQ). Sensors: EW equipment including AN/ALR-60, AN/ALQ-76, AN/ALQ-78, AN/ALQ-108 and AN/ASQ-114. Weapons: Unarmed. ***UPDATED***

EP-3E *10/2003*, Paul Jackson* / 0110197

Numbers/Type: 224/1 Lockheed P-3C/P-3B Orion.
Operational speed: 411 kt *(761 km/h)*.
Service ceiling: 28,300 ft *(8,625 m)*.
Range: 4,000 n miles *(7,410 km)*.
Role/Weapon systems: 111 in active (49 in reserve) operational squadrons (VP) deployed worldwide; primary ASW/ASUW; ASUW update III conversions to 146 airframes by end 2000. Sensors: APS-115 search radar or APS-137(V)3 fitted in 18 aircraft, ASQ-81 MAD, UYS-1 acoustic suite, up to 100 sonobuoys, AAR-36 FLIR, cameras, ALR-66 ESM. AAR 47 ESM and ALE 47 chaff/IR dispenser in Update II. 18 Counter-Drug Upgrade (CDU) aircraft employ APG-66 air-to-air radar and AVX-1 Electro-Optics. Up to 68 ASUW Improvement Program (AIP) aircraft employ the APS-137B(V)5 ISAR/SAR radar, AVX-1 Electro-Optics, UYS-1 acoustics, OASIS III/OTCIXS communications suite, and SATCOM. Weapons: ASW; four Mk 46/50 torpedoes or depth bombs. ASUW; four AGM-84C Harpoon, AGM-65F Maverick, AGM-84E SLAM, six Mk 55/56 mines. ***UPDATED***

P-3C *7/2002, Hachiro Nakai* / 0530043

Numbers/Type: 16 Boeing E-6B Mercury/TACAMO/ABNCP.
Operational speed: 455 kt *(842 km/h)*.
Service ceiling: 42,000 ft *(12,800 m)*.
Range: 6,350 n miles *(11,760 km/h)*.
Role/Weapon systems: Strategic Command Airborne Command Post. First flown in E-6A configuration in 1990(VQ). E-6B first flown in TACAMO/ABNCP configuration in 1997 and assumed ABNCP role in 1998. Eleven aircraft converted from E-6A to E-6B with five remaining aircraft scheduled to be modified by 2003. Sensors: Radar Bendix APS-133; ALR-68(V)4 ESM; supports Trident Fleet radio communications with up to 28,000 ft of VLF trailing wire antenna. Weapons: Unarmed. ***UPDATED***

COMMAND SHIPS

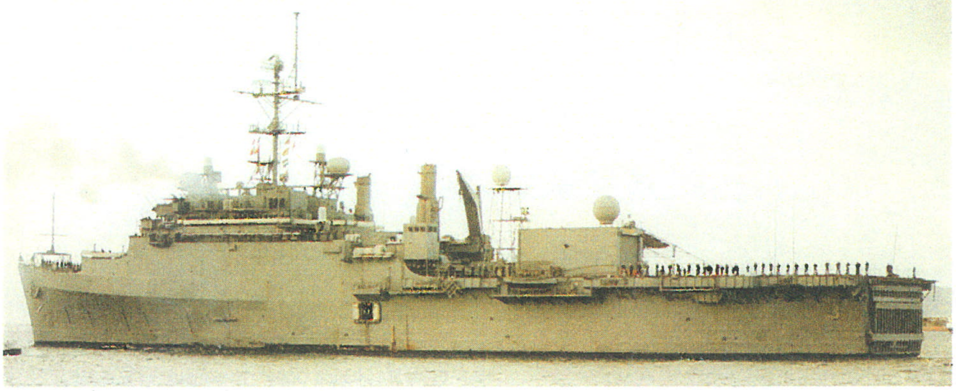
Notes: Options for replacement of the four in-service command ships remain under consideration. They include new construction ships, service-life extensions of current ships and/or a mix of sea and land-based facilities.

1 CONVERTED RALEIGH CLASS: COMMAND SHIP (AGFH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*
LA SALLE	AGF 3 (ex-LPD 3)	New York Naval Shipyard	2 Apr 1962	3 Aug 1963	22 Feb 1964	AA

Displacement, tons: 9,834 light; 14,650 full load
Dimensions, feet (metres): 521 × 84 × 21 *(158.7 × 25.6 × 6.4)*
Main machinery: 2 Babcock & Wilcox boilers; 600 psi *(42.2 kg/cm²)*; 870°F *(467°C)*; 2 De Laval turbines; 24,000 hp *(17.9 MW)*; 2 shafts

Speed, knots: 20. **Range, miles:** 9,600 at 16 kt
Complement: 445 (25 officers) plus 138 staff (48 officers)
Guns: 2 General Electric/General Dynamics 20 mm Vulcan Phalanx Mk 15.
2 Bushmaster 25 mm Mk 38. 2—40 mm saluting guns. 2—12.7 mm MGs.



LA SALLE *5/1999, van Ginderen Collection* / 0084124

Countermeasures: Decoys: 4 Loral Hycor SRBOC Mk 36; chaff and IR flares.
ESM: SLQ-32(V)3; WLR-1; intercept and jammer.
Combat data systems: GCCS (M) Link 11 and Link 14 (receive only). Theatre Battle Management Core Systems (TBMCS). Wide band commercial SATCOM, USC-38 SATCOM, WSC-3 EHF SATCOM, WSC-6 SHF SATCOM, Mission Display System (MDS). Demand Assigned Multiple Access (DAMA HEXA). (See Data Systems at front of section.)
Radars: Air search: Lockheed SPS-40; E/F-band.
Surface search: Raytheon SPS-10F; G-band.
Navigation: Raytheon SPS-64(V)9; I-band.
Tacan: URN 25.
Helicopters: 1 light.

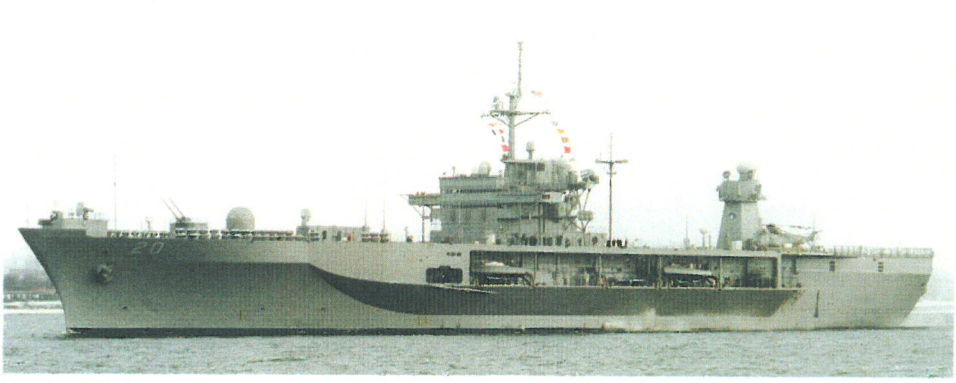
Comment: A former amphibious transport dock (LPD) of the 'Raleigh' class. Authorised in FY61. She served as an amphibious ship until converted in 1972 at Philadelphia Navy Yard. Flag command and communications facilities installed; additional air conditioning fitted. Helicopter hangar installed on the port side of the flight deck. Deck landing spots for heavy helicopters. Reclassified as a flagship and designated AGF 3 on 1 July 1972 keeping previous '3' hull number. Has served as flagship for the US Commander, Middle East Force, operating in the Persian Gulf, Arabian Sea and Indian Ocean. Refitted again in 1993-94 and again at Toulon from June to December 1999. Took over as Sixth Fleet Flagship in November 1994 at Gaeta in Italy. To be decommissioned in FY06. ***UPDATED***

2 BLUE RIDGE CLASS: COMMAND SHIPS (LCCH/AGFH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*
BLUE RIDGE	LCC 19	Philadelphia Naval Shipyard	27 Feb 1967	4 Jan 1969	14 Nov 1970	PA
MOUNT WHITNEY	LCC 20	Newport News Shipbuilding	8 Jan 1969	8 Jan 1970	16 Jan 1971	AA

Displacement, tons: 13,077 light; 19,648 full load *(Blue Ridge)* 12,846 light; 19,760 full load *(Mount Whitney)*
Dimensions, feet (metres): 636.5 × 107.9 × 28.9 *(194 × 32.9 × 8.8)*
Main machinery: 2 Foster-Wheeler boilers; 600 psi *(42.3 kg/cm²)*; 870°F *(467°C)*; 1 GE turbine; 22,000 hp *(16.4 MW)*; 1 shaft
Speed, knots: 23. **Range, miles:** 13,000 at 16 kt
Complement: LCC 19: 786; 637 Flag staff. LCC 20: 819; 562 Flag staff
Military lift: 700 troops; 3 LCPs; 2 LCVPs

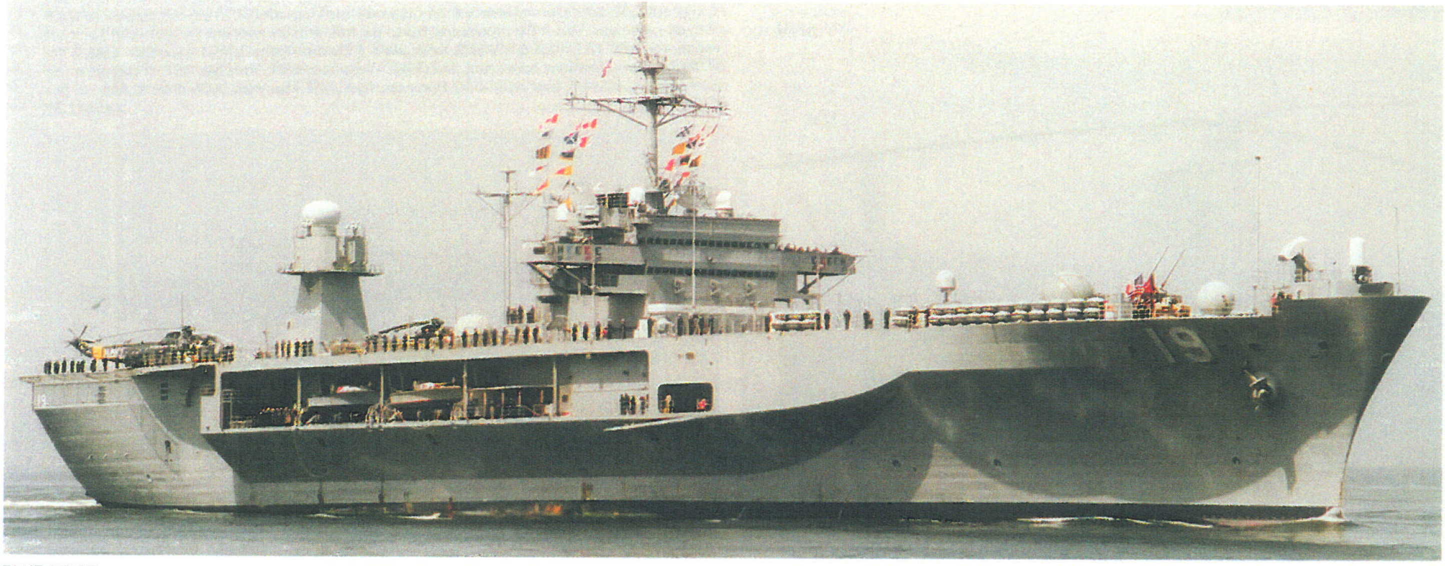
Guns: 2 General Electric/General Dynamics 20 mm/76 6-barrelled Vulcan Phalanx Mk 15; 3,000 rds/min (4,500 in Block 1) combined to 1.5 km.
2—25 mm Mk 38.
Countermeasures: Decoys: 4 Loral Hycor SRBOC 6-barrelled fixed Mk 36; IR flares and chaff to 4 km *(2.2 n miles)*. SLQ-25 Nixie; torpedo decoy.
ESM/ECM: SLQ-32(V)3; combined radar intercept, jammer and deception system.
Combat data systems: GCCS (M) Link 4A, Link 11, Link 14 and JTIDS. Theatre Battle Management Core Systems (TBMCS). Wide band commercial SATCOM, USC-38 SATCOM, WSC-3 EHF SATCOM, WSC-6(V)1 and 5, and WSC-6A(V)4 SHF SATCOM. High Frequency Radio Group (HFRG). Mission Display System (MDS). Demand Assigned Multiple Access (DAMA QUAD). Area Air Defense Commander, Naval Fires Network, NITES 2000. (See Data Systems at front of section.)
Radars: Air search: ITT SPS-48C; 3D; E/F-band.
Lockheed SPS-40E; B-band.
Surface search: Raytheon SPS-65(V)1; G-band.
Navigation: Marconi LN66; Raytheon SPS-64(V)9; I-band.
Tacan: URN 25. IFF: Mk XII AIMS UPX-29.


MOUNT WHITNEY *2/2002, Michael Nitz* / 0530046

Helicopters: 1 Sikorsky SH-3H Sea King.

Programmes: Authorised in FY65 and 1966. Originally designated Amphibious Force Flagships (AGC); redesignated Command Ships (LCC) on 1 January 1969.
Modernisation: Modernisation completed FY87. 3 in guns removed in 1996/97 and Sea Sparrow missile launchers have been disembarked. Mk 23 TAS and RAM are not now to be fitted.
Structure: General hull design and machinery arrangement are similar to the 'Iwo Jima' class assault ships. Accommodation for 250 officers and 1,300 enlisted men.

Operational: These are large force command ships of post-Second World War design. They can provide integrated command and control facilities for sea, air and land commanders in all types of operations. *Blue Ridge* is the Seventh Fleet flagship, based at Yokosuka, Japan. *Mount Whitney* has served since January 1981 as flagship Second Fleet, based at Norfolk, Virginia except during the period June to November 1999 when she served as Sixth Fleet flagship.
UPDATED


BLUE RIDGE *4/2002, Hachiro Nakai* / 0530045

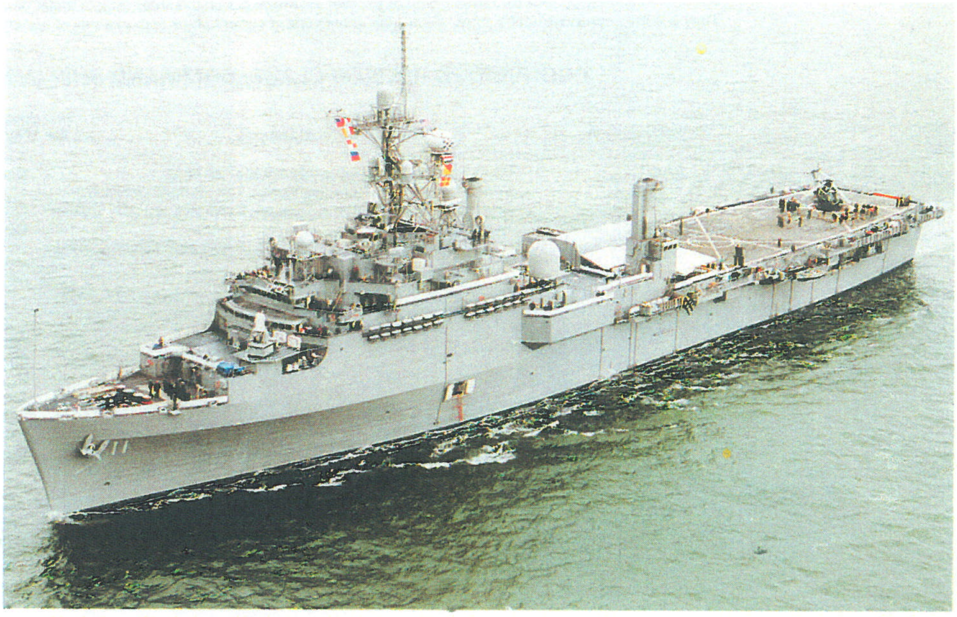
1 CONVERTED AUSTIN CLASS: COMMAND SHIP (AGFH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*
CORONADO	AGF 11 (ex-LPD 11)	Lockheed SB & Construction Co	3 May 1965	30 July 1966	23 May 1970	PA

Displacement, tons: 11,482 light; 16,912 full load
Dimensions, feet (metres): 570 × 100 (84 hull) × 23 *(173.8 × 30.5 (25.6) × 7)*
Main machinery: 2 Foster-Wheeler boilers; 600 psi *(42.2 kg/cm²)*; 870°F *(467°C)*; 2 De Laval turbines; 24,000 hp *(17.9 MW)*; 2 shafts
Speed, knots: 21. **Range, miles:** 7,700 at 20 kt
Complement: 545 plus 491 Flag staff
Guns: 2 General Electric/General Dynamics 20 mm Vulcan Phalanx Mk 15. 2—12.7 mm MGs.
Countermeasures: Decoys: 4 Loral Hycor SRBOC 6-barrelled Mk 36; IR flares and chaff.
ESM: SLQ-32V(2); WLR-1; intercept.
Combat data systems: GCCS (M) Link 11 and Link 16 (receive only). Theatre Battle Management Core Systems (TBMCS). Land Attack Warfare System (LAWS). Wide band commercial SATCOM, USC-38 SATCOM, WSC-3 EHF SATCOM, WSC-6 SHF SATCOM. High Frequency Radio Group (HFRG). Single Channel Ground Air Radio System. (See Data Systems at front of section.)
Radars: Surface search: Raytheon SPS-10F; G-band.
Navigation: Raytheon SPS-64(V)9; I-band.
Tacan: URN 25.

Helicopters: 2 light.

Programmes: A former LPD of the 'Austin' class. Authorised in FY64.
Structure: The well deck was converted in 1997 to offices, with a three deck command facility and additional accommodation for up to four Flag Officers with a combined staff of 259. The stern gate has been removed and sealed. 3 in guns removed.
Operational: Converted in late 1980 as a temporary replacement for *La Salle* (AGF 3), as flagship, Middle East Force and continued in flagship role thereafter. Served as Sixth Fleet flagship for three years until relieved by *Belknap* in July 1986. Then served as Third Fleet flagship in Hawaii and subsequently San Diego. In 2000 *Coronado* was designated as the US Navy's sea-based Battle-Lab to act as a testbed for new IT systems. In 2002, acted as hub for major joint exercises including 'Millenium Challenge', 'Rimpac 2002' and 'Fleet Battle Experiment 2002'. To be decommissioned in FY06.
UPDATED


CORONADO *10/2000, Findler & Winter* / 0106790

AMPHIBIOUS FORCES

Notes: (1) The LHA Replacement Analysis of Alternatives was completed in September 2002. Options examined included: LHD 8 design, stretched LHD 8 design, new design, smaller designs and distributed solutions. A decision on the way-ahead is to be announced.

(2) Additional capacity is provided by the maritime pre-positioning ships (see listing under *Military Sealift Command* (MSC) section) which are either new construction or conversions of commercial ships. One squadron is maintained on station in the Atlantic, a second at Guam, and a third at Diego Garcia. Each squadron carries equipment to support a Marine Expeditionary Brigade.

(3) **Minesweeping:** Several of the larger amphibious ships have been used as operating bases for minesweeping helicopters.

(4) Five decommissioned LKAs and four LSTs are kept in an inactive reduced maintenance status (ROS). These are *Fresno* (LST 1182), *Tuscaloosa* (LST 1187), *Boulder* (LST 1190), *Racine* (LST 1191), *Charleston* (LKA 113), *Durham* (LKA 114), *Mobile* (LKA 115), *St Louis* (LKA 116) and *El Paso* (LKA 117).

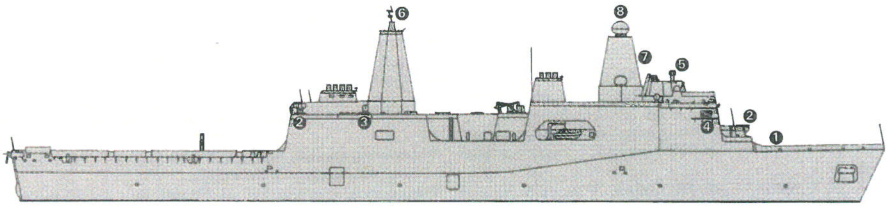
0 + 4 (8) SAN ANTONIO CLASS: AMPHIBIOUS TRANSPORT DOCKS (LPDM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*
SAN ANTONIO	LPD 17	Northrop Grumman Ship Systems (Avondale)	9 Dec 2000	19 July 2003	Feb 2005	Bldg
NEW ORLEANS	LPD 18	Northrop Grumman Ship Systems (Avondale)	8 Nov 2002	May 2004	Dec 2005	Bldg
MESA VERDE	LPD 19	Northrop Grumman Ship Systems (Ingalls)	25 Feb 2003	Sep 2004	Feb 2006	Bldg
GREEN BAY	LPD 20	Northrop Grumman Ship Systems (Avondale)	26 Aug 2003	Mar 2005	Oct 2006	Bldg
NEW YORK	LPD 21	Northrop Grumman Ship Systems (Avondale)	2004	2006	2007	–
SAN DIEGO	LPD 22	Northrop Grumman Ship Systems (Avondale)	2005	2007	2008	Ord

Displacement, tons: 25,300 full load
Dimensions, feet (metres): 683.7 × 104.7 × 23 *(208.4 × 31.9 × 7)*
Main machinery: 4 Colt Pielstick PC 2.5 diesels; 40,000 hp *(29.84 MW)*; 2 shafts; cp props
Speed, knots: 22
Complement: 361 (28 officers) plus 34 spare
Military lift: 720 troops; 2 LCACs, 14 AAAVs

Missiles: SAM: Mk 41 VLS for 2 octuple cell Evolved Sea Sparrow ①. 64 missiles. May be fitted later.
2 Mk 31 Mod 1 RAM launchers ②.
Guns: 2-30 mm Mk 46. 4-12.7 mm MGs.
Countermeasures: Decoys: 6 Mk 53 Mod 4 Nulka and chaff launcher ③. SLQ-25A Nixie towed torpedo decoy.
ESM/ECM: SLQ-32A(V)2 ④; intercept and jammer.
Combat data systems: SSDS Mk 2; GCCS (M), CEC, JTIDS (Link 16), AADS (see Data Systems at front of section).
Weapons control: 2 Mk 95 NSSMs optronic directors ⑤; fitted for but not with.
Radars: Air search: ITT SPS-48E ⑥; E/F-band.
Surface search/navigation: Raytheon SPS-73(V)13 ⑦; I-band.
Fire control: Lockheed SPQ-9B ⑧; I-band.

Helicopters: 1 CH-53E Sea Stallion or 2 CH-46E Sea Knight or 1 MV-22 Osprey.



SAN ANTONIO *(Scale 1 : 1,800), Ian Sturton* / 0573475

Programmes: The LPD 17 (ex-LX) programme was first approved by the Defense Acquisition Board on 11 January 1993. It will replace four classes of amphibious ships: LPD 4s, LSTs, LKAs and LSD 36s. Contract for first ship, with an option on two more, awarded to Avondale on 17 December 1996. A protest about the award delayed the effective contract date to April 1997. The lead ship contract options for FY99 and FY00 on LPD 18 and LPD 19 were exercised in December 1998 and February 2000 respectively. A negotiated modification added the second FY00 ship, LPD 20, to the lead ship contract in May 2000. Contract award for LPD 21 planned for FY04. Under agreement reached in June 2002, NGSS is to build all 12 ships. Difficulties in design phase have led to two-year delay to original delivery date of lead ship. Delivery of final ship is planned for 2014.

Structure: Panama Canal-capable ships able to control and support landing forces disembarking either via surface craft such as LCACs or by VTOL aircraft, principally helicopters. The design supports a lift capability of 25,000 sq ft of deck space for vehicles, 34,000 cu ft of cargo below decks and 720 embarked Marines. The well-deck and stern gate arrangements are similar to those of the 'Wasp' class; the well-deck can carry two LCACs or one LCU, or 14 Expeditionary Fighting Vehicles. The Flight deck can land/launch four CH-46s or two CH-53s or two MV-22s. The hangar will accommodate two CH-46s or one CH-53 or one MV-22. There is a 24-bed hospital. Although with similar capabilities as the classes they are to replace, the ships are not equipped with the flag facilities of some 'Austin' class LPDs, the heavy over-the-side lift capability of LKAs and the ability of LSTs to beach. There is a crane for support of boat operations and an Advanced Enclosed Mast System, trialled in DD 968, is being fitted in all. Space and weight reserved for Mk 41 VLS. On 9 September 2003, salvaged steel from the World Trade Centre was cast into the bow section of USS *New York*.

UPDATED

SAN ANTONIO *7/2003*, Northrop Grumman* / 0549855

7 + 1 WASP CLASS: AMPHIBIOUS ASSAULT SHIPS (LHDM/MCSM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*
WASP	LHD 1	Ingalls Shipbuilding	30 May 1985	4 Aug 1987	29 July 1989	AA
ESSEX	LHD 2	Ingalls Shipbuilding	16 Feb 1989	4 Jan 1991	17 Oct 1992	PA
KEARSARGE	LHD 3	Ingalls Shipbuilding	6 Feb 1990	26 Mar 1992	16 Oct 1993	AA
BOXER	LHD 4	Ingalls Shipbuilding	26 Mar 1991	13 Aug 1993	11 Feb 1995	PA
BATAAN	LHD 5	Ingalls Shipbuilding	16 Mar 1994	15 Mar 1996	20 Sep 1997	AA
BONHOMME RICHARD	LHD 6	Ingalls Shipbuilding	29 Mar 1995	14 Mar 1997	15 Aug 1998	PA
IWO JIMA	LHD 7	Ingalls Shipbuilding	12 Dec 1997	4 Feb 2000	30 June 2001	AA
MAKIN ISLAND	LHD 8	Northrop Grumman Ship Systems (Ingalls)	14 Feb 2004	Jan 2006	Aug 2007	Bldg

Displacement, tons: 40,650 (LHD 1-4); 40,358 (LHD 5-7); 41,772 (LHD 8) full load

Dimensions, feet (metres): 844 oa; 788 wl × 140.1 oa; 106 wl × 26.6 *(257.3; 240.2 × 42.7; 32.3 × 8.1)*

Flight deck, feet (metres): 819 × 106 *(249.6 × 32.3)*

Main machinery: 2 Combustion Engineering boilers; 600 psi *(42.3 kg/cm²)*; 900°F *(482°C)*; 2 Westinghouse turbines; 70,000 hp *(52.2 MW)*; 2 shafts

2 GE LM 2500+ gas turbines (LHD 8)

Speed, knots: 22. **Range, miles:** 9,500 at 18 kt

Complement: 1,123 (65 officers)

Military lift: 2,000 troops; 12 LCM 6s or 3 LCACs; 1,232 tons aviation fuel; 4 LCPL

Missiles: SAM: 2 Raytheon GMLS Mk 29 octuple launchers ❶; 16 Sea Sparrow; semi-active radar homing to 14.6 km *(8 n miles)* at 2.5 Mach; warhead 39 kg. ESSM in due course.

2 GDC Mk 49 RAM; 21 rounds per launcher ❷; passive IR/anti-radiation homing to 9.6 km *(5.2 n miles)* at 2 Mach; warhead 9.1 kg.

Guns: 2 or 3 General Electric/General Dynamics 20 mm 6-barrelled Vulcan Phalanx Mk 15 ❸; 3,000 rds/min (4,500 in Batch 1) combined to 1.5 km.

3 Boeing Bushmaster 25 mm Mk 38. 4—12.7 mm MGs.

Countermeasures: Decoys: 4 or 6 Loral Hycor SRBOC 6-barrelled fixed Mk 36; IR flares and chaff to 4 km *(2.2 n miles)*.

SLQ-25 Nixie; acoustic torpedo decoy system. NATO Sea Gnat. SLQ-49 chaff buoys. AEB SSQ-95.

ESM/ECM: SLQ-32(V)3/SLY-2; intercept and jammers. Raytheon ULQ-20.

Combat data systems: ACDS Block 1 level 2 (LHD 1 and 7) and Block 0 (LHD 2-6). SSDS Mk 2 (LHD 8 on build and LHD 1 and 7 in 2007). Integrated Tactical Amphibious Warfare Data System (ITAWDS) and Marine Tactical Amphibious C² System (MTACCS). Links 4A, 11 (modified), 14 and 16. SATCOMS ❹ SSR-1, WSC-3 (UHF), USC-38 (EHF). SMQ-11 Metsat (see Data Systems at front of section). Advanced Field Artillery TDS (LHD 6 and 7).

Weapons control: 2 Mk 91 MFCS.

Radars: Air search: ITT SPS-48E ❺; 3D; E/F-band.

Raytheon SPS-49(V)9 ❻; C/D-band.

Hughes Mk 23 TAS ❼; D-band. SPQ-9B (LHD 8).

Surface search: Norden SPS-67 ❽; G-band.

Navigation: SPS-73; I-band.

CCA: SPN-35B and SPN-43C. SPN-46 in due course.

Fire control: 2 Mk 95; I/J-band. SPQ-9B to be fitted.

Tacan: URN 25. IFF: CIS Mk XV UPX-29.

Fixed-wing aircraft: 6-8 AV-8B Harriers or up to 20 in secondary role. V22 Osprey in due course.

Helicopters: Capacity for 42 CH-46E Sea Knight but has the capability to support: AH-1W Super Cobra, CH-53E Super Stallion, CH-53D Sea Stallion, UH-1N Twin Huey, AH-1T Sea Cobra, and SH-60B Seahawk helicopters. UAV in due course.

Programmes: LHD 8 being funded incrementally by Congress from FY99-FY06 including budgeted resources in FY03.

Modernisation: RAM launchers retrofitted in all vice the forward Phalanx (which may be moved to the bridge roof) and at the stern.

Structure: Two aircraft elevators, one to starboard and aft of the 'island' and one to port amidships; both fold for Panama canal transits. The well-deck is 267 × 50 ft and can accommodate up to three LCACs. The flight deck has nine helicopter landing spots. Cargo capacity is 125,000 cu ft total with an additional 20,000 sq ft to accommodate vehicles. Vehicle storage is available for five M1 tanks, 25 LAVs, eight M 198 guns, 68 trucks, 10 logistic vehicles and several service vehicles. The bridge is two decks lower than that of an LHA, command, control and communication spaces having been moved inside the hull to avoid 'cheap kill' damage. Fitted with a 64 bed capacity hospital and six operating rooms. HY-100 steel covers the flight deck. Three 32 ft monorail trains each carrying 6,000 lbs, deliver material to the well-deck at 6.8 mph. *Iwo Jima* is likely to be the last oil-fired steam turbine ship in the USN. LHD 8 is to be fitted with gas turbine propulsion.

Operational: A typical complement of aircraft is a mix of 30 helicopters and six to eight Harriers (AV-8B). In the secondary role as a sea control ship the most likely mix is 20 AV-8B Harriers and four to six SH-60B Seahawk helicopters. LHD 3 modified to provide interim Mine Countermeasures Command (MCS) capability following decommissioning of *Inchon* in June 2002. In 2003, LHA 5 deployed as the centrepiece of the first Expeditionary Strike Group (ESG). LHDs 1, 3, 5 and 7 based at Norfolk, Virginia, and LHDs 2, 4 and 6 at San Diego, California.

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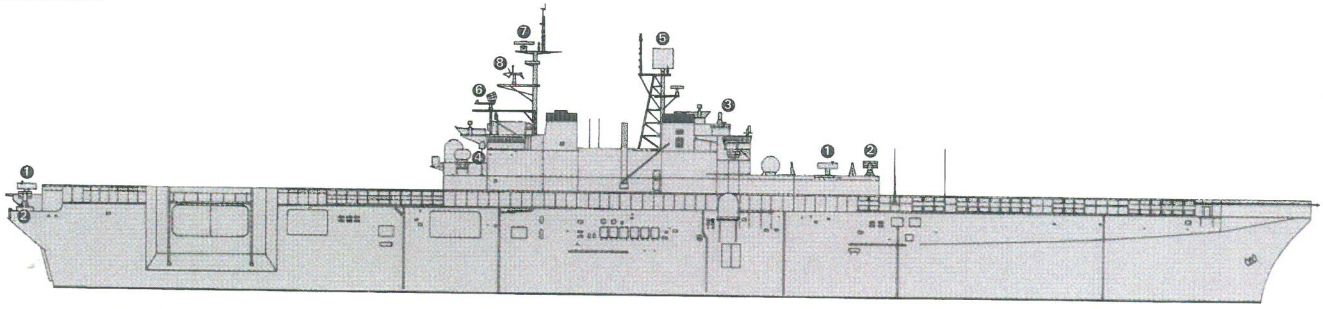
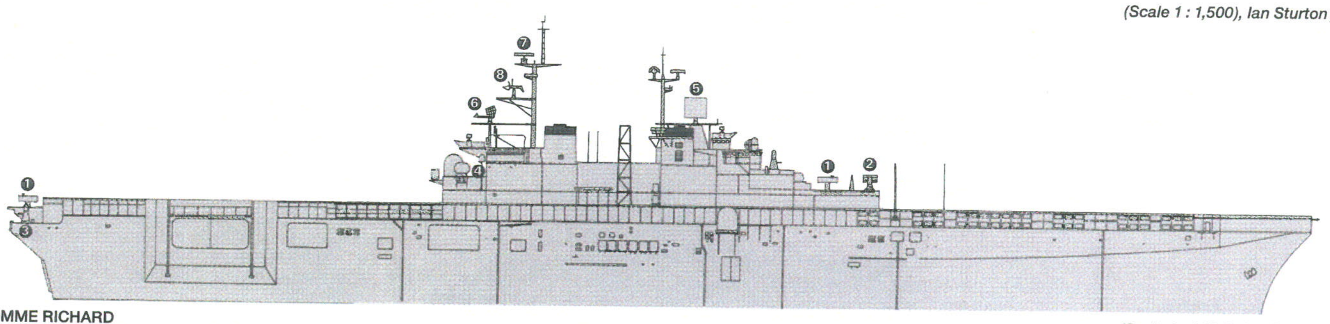


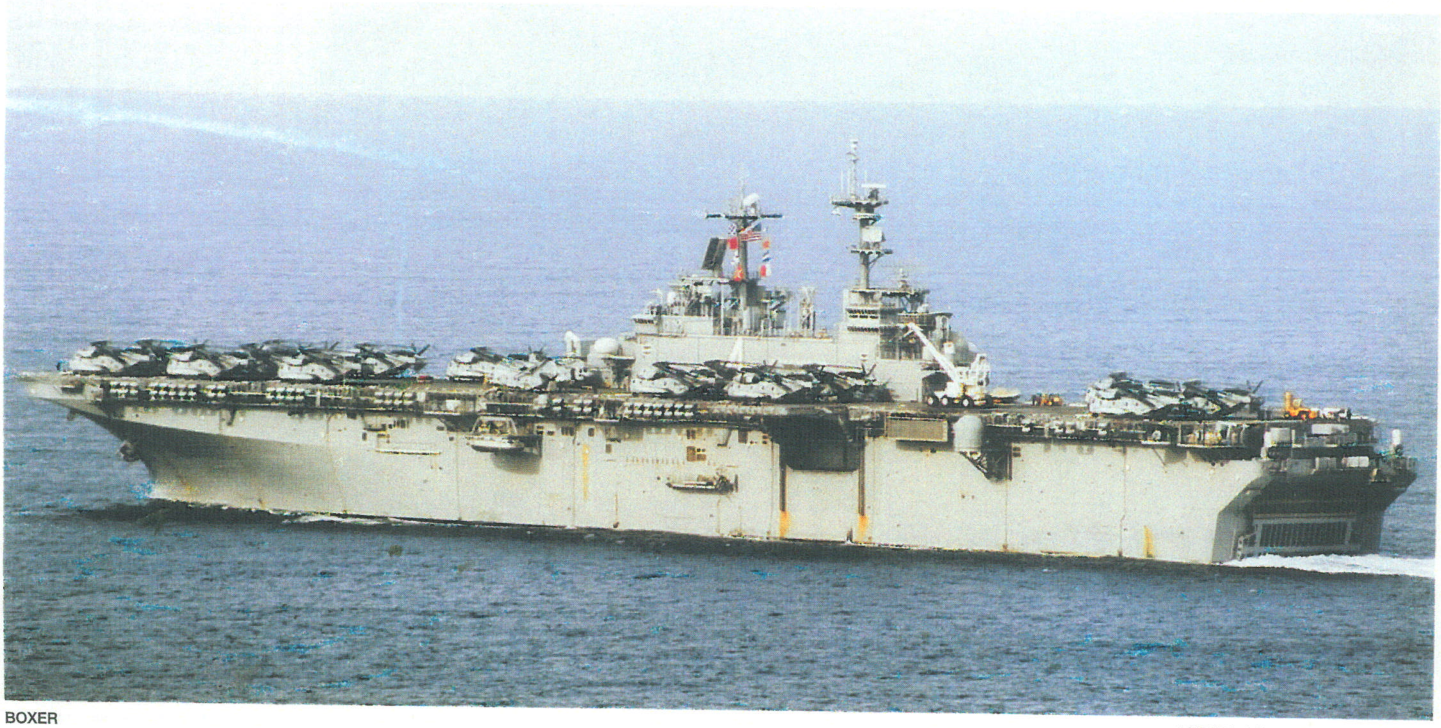
ESSEX

(Scale 1 : 1,500), Ian Sturton / 0131367



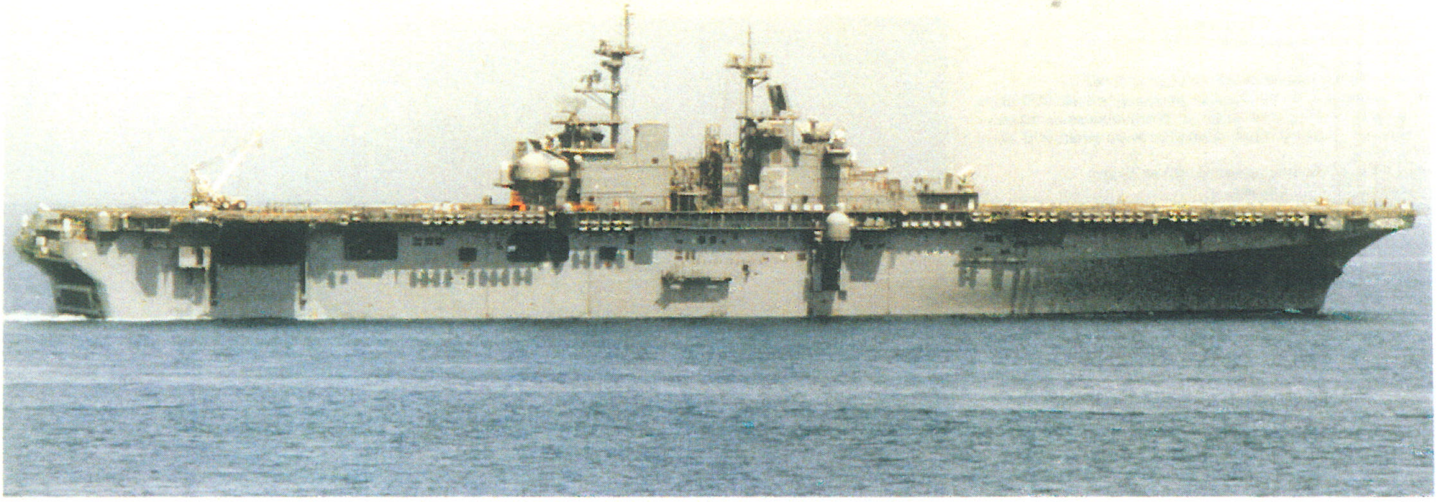
BONHOMME RICHARD

(Scale 1 : 1,500), Ian Sturton / 0131368

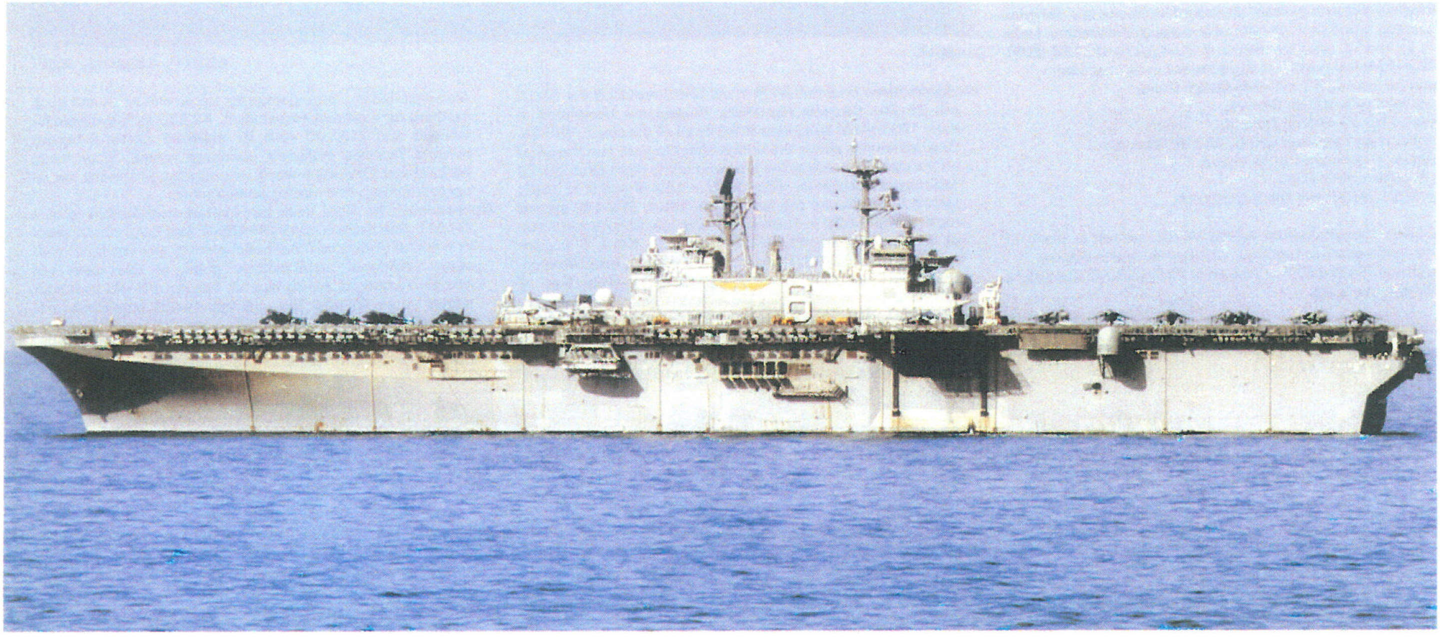


BOXER

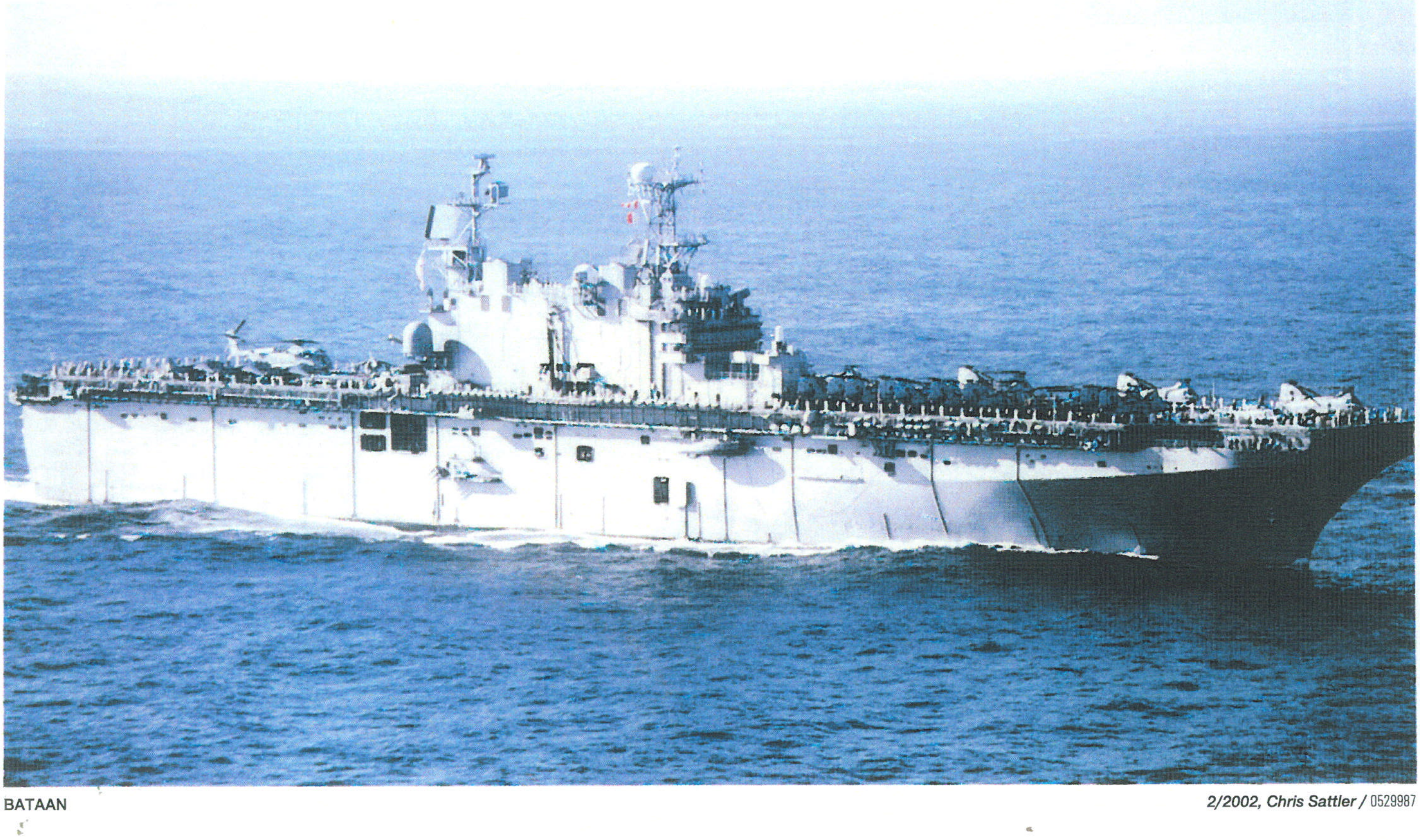
6/2003, Mick Prendergast* / 0572785



KEARSARGE *4/2003*, A Sharma* / 0572779



BONHOMME RICHARD *4/2003*, A Sharma* / 0572816



BATAAN *2/2002, Chris Sattler* / 0529987

5 TARAWA CLASS: AMPHIBIOUS ASSAULT SHIPS (LHAM)

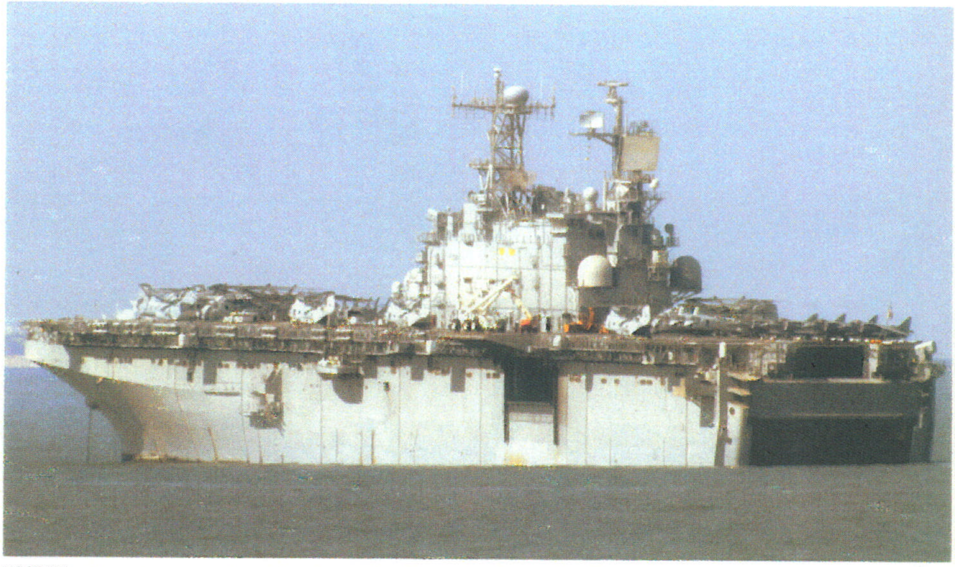
Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*
TARAWA	LHA 1	Ingalls Shipbuilding	15 Nov 1971	1 Dec 1973	29 May 1976	PA
SAIPAN	LHA 2	Ingalls Shipbuilding	21 July 1972	18 July 1974	15 Oct 1977	AA
BELLEAU WOOD	LHA 3	Ingalls Shipbuilding	5 Mar 1973	11 Apr 1977	23 Sep 1978	PA
NASSAU	LHA 4	Ingalls Shipbuilding	13 Aug 1973	21 Jan 1978	28 July 1979	AA
PELELIU (ex-*Da Nang*)	LHA 5	Ingalls Shipbuilding	12 Nov 1976	25 Nov 1978	3 May 1980	PA

Displacement, tons: 39,967 full load
Dimensions, feet (metres): 834 × 131.9 × 25.9 *(254.2 × 40.2 × 7.9)*
Flight deck, feet (metres): 820 × 118.1 *(250 × 36)*
Main machinery: 2 Combustion Engineering boilers; 600 psi *($42.3 kg/cm^2$)*; 900°F *(482°C)*; 2 Westinghouse turbines; 70,000 hp *(52.2 MW)*; 2 shafts; bow thruster; 900 hp *(670 kW)*
Speed, knots: 24. **Range, miles:** 10,000 at 20 kt
Complement: 930 (56 officers)
Military lift: 1,703 troops; 4 LCU 1610 type or 2 LCU and 2 LCM 8 or 17 LCM 6 or 45 LVT tractors; 1,200 tons aviation fuel. 1 LCAC may be embarked. 4 LCPL

Missiles: SAM: 2 GDC Mk 49 RAM ❶; 21 rounds per launcher; passive IR/anti-radiation homing to 9.6 km *(5.2 n miles)* at 2 Mach; warhead 9.1 kg.
Guns: 2 General Electric/General Dynamics 20 mm/76 6-barrelled Vulcan Phalanx Mk 15 ❷; 3,000 rds/min (4,500 in Block 1) combined to 1.5 km.
6 Mk 242 25 mm automatic cannons. 8—12.7 mm MGs.
Countermeasures: Decoys: 4 Loral Hycor SRBOC 6-barrelled fixed Mk 36; IR flares and chaff to 4 km *(2.2 n miles)*.
SLQ-25 Nixie; acoustic torpedo decoy system. NATO Sea Gnat. SLQ-49 chaff buoys. AEB SSQ-95.
ESM/ECM: SLQ-32V(3); intercept and jammers.
Combat data systems: ACDS Block 0. Advanced Combat Direction System to provide computerised support in control of helicopters and aircraft, shipboard weapons and sensors, navigation, landing craft control and electronic warfare. Links 4A, 11 and 16. SATCOM SRR-1, WSC-3 (UHF), USC-38 (EHF). SMQ-11 Metsat (see Data Systems at front of section).
Radars: Air search: ITT SPS-48E ❸; E/F-band.
Lockheed SPS-40E ❹; B-band.
Hughes Mk 23 TAS ❺; D-band.
Surface search: Raytheon SPS-67(V)3 ❻; G-band.
Navigation: Raytheon SPS-73; I-band.
CCA: SPN-35A; SPN-43B.
Tacan: URN 25. IFF: CIS Mk XV/UPX-36.

Fixed-wing aircraft: Harrier AV-8B VSTOL aircraft in place of some helicopters as required. V22 Osprey in due course.
Helicopters: 19 CH-53D Sea Stallion or 26 CH-46D/E Sea Knight UAV in due course.

Programmes: Originally intended to be a class of nine ships. LHA 1 was authorised in FY69, LHA 2 and LHA 3 in FY70 and LHA 4 and LHA 5 in FY71.


NASSAU *4/2003*, A Sharma /* 0572814

Modernisation: Two Vulcan Phalanx CIWS replaced the GMLS Mk 25 Sea Sparrow launchers. Programme completed in early 1991. RAM launchers fitted to all of the class 1993-95. One launcher is above the bridge offset to port, and the other on the starboard side at the after end of the flight deck. Mk 23 TAS target acquisition radar fitted in LHA 3 and 5 in 1992, LHA 4 in 1993 and the last pair in 1994. SPS-48E started replacing SPS-52D in 1994 to improve low altitude detection of missiles and aircraft. ACDS Block 0 in 1996. 5 in guns removed in 1997/98. Plans to fit SSDS have been shelved. Collective Protection Systems upgrade in progress. Fuel oil compensation system being installed to improve stability.

Structure: There are two lifts, one on the port side aft and one at the stern. Beneath the after elevator is a floodable docking well measuring 268 ft in length and 78 ft in width which is capable of accommodating four LCU 1610 type landing craft. Also included is a large garage for trucks and AFVs and troop berthing for a reinforced battalion. 33,730 sq ft available for vehicles and 116,900 cu ft for palletted stores. Extensive medical facilities including operating rooms, X-ray room, hospital ward, isolation ward, laboratories, pharmacy, dental operating room and medical store rooms.

Operational: The flight deck can operate a maximum of nine CH-53D Sea Stallion or 12 CH-46D/E Sea Knight helicopters or a mix of these and other helicopters at any one time. With some additional modifications, ships of this class can effectively operate AV-8B aircraft. The normal mix of aircraft allows for six AV-8Bs. The optimum aircraft configuration is dependent upon assigned missions. Unmanned Reconnaissance Vehicles (URVs) can be operated. LHA 3 to be decommissioned when LHD 8 enters service in 2008.

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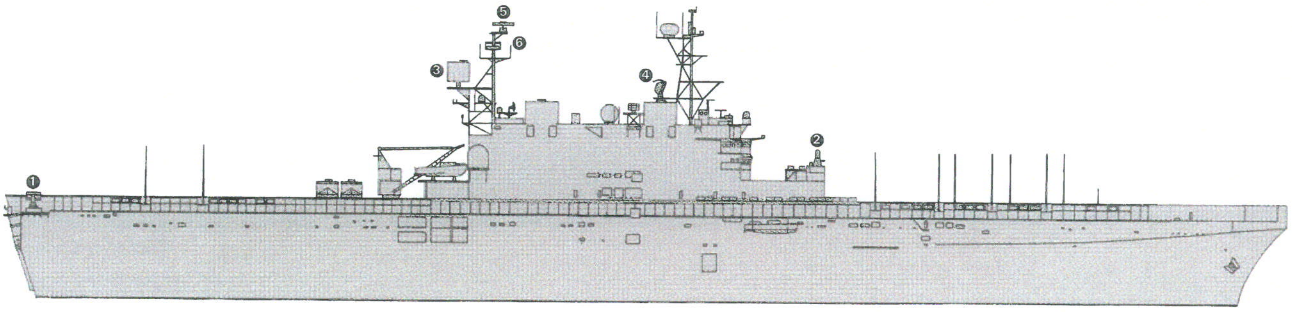
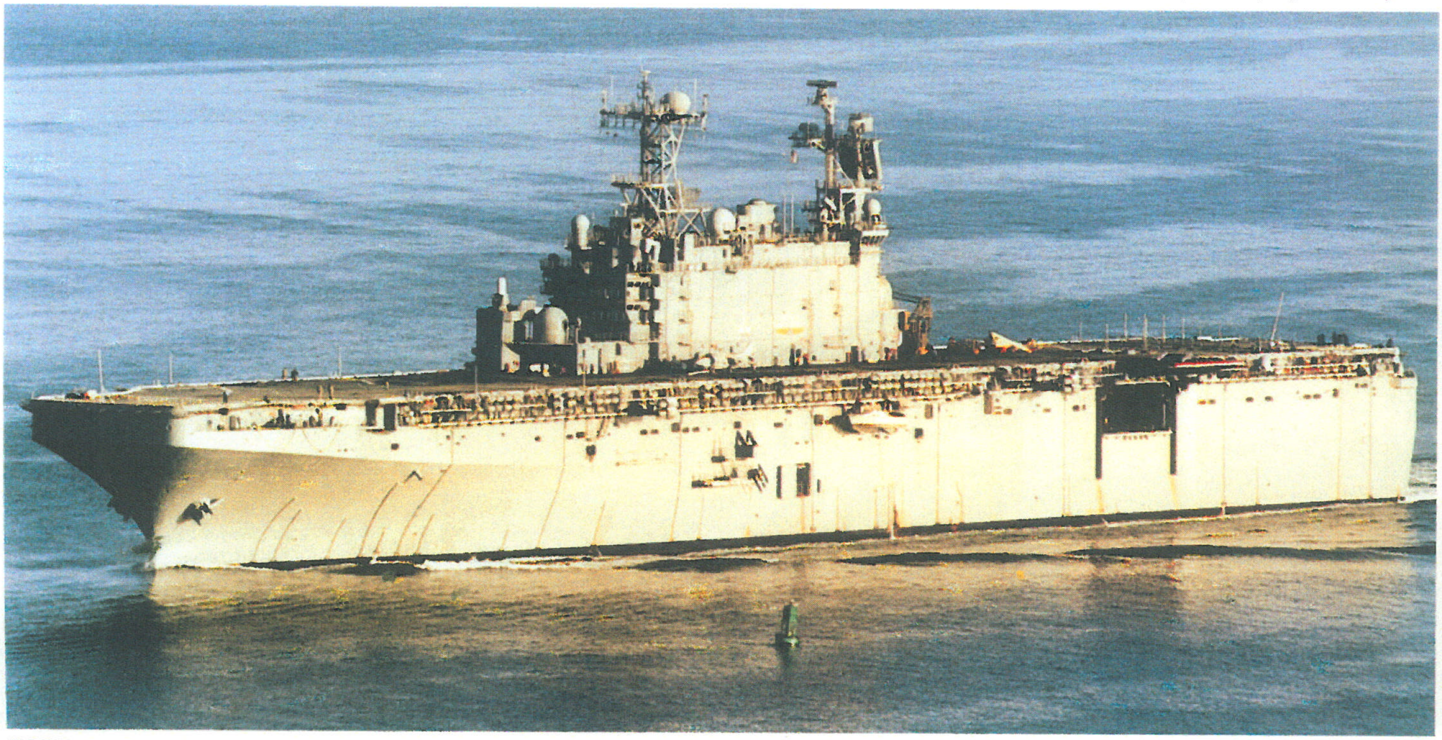


PELELIU *(Scale 1 : 1,500), Ian Sturton /* 0131369


TARAWA *10/2002, Frank Findler /* 0529985

11 AUSTIN CLASS: AMPHIBIOUS TRANSPORT DOCKS (LPD)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*
AUSTIN	LPD 4	New York Naval Shipyard	4 Feb 1963	27 June 1964	6 Feb 1965	AA
OGDEN	LPD 5	New York Naval Shipyard	4 Feb 1963	27 June 1964	19 June 1965	PA
DULUTH	LPD 6	New York Naval Shipyard	18 Dec 1963	14 Aug 1965	18 Dec 1965	PA
CLEVELAND	LPD 7	Ingalls Shipbuilding	30 Nov 1964	7 May 1966	21 Apr 1967	PA
DUBUQUE	LPD 8	Ingalls Shipbuilding	25 Jan 1965	6 Aug 1966	1 Sep 1967	PA
DENVER	LPD 9	Lockheed SB & Construction Co	7 Feb 1964	23 Jan 1965	26 Oct 1968	PA
JUNEAU	LPD 10	Lockheed SB & Construction Co	23 Jan 1965	12 Feb 1966	12 July 1969	PA
SHREVEPORT	LPD 12	Lockheed SB & Construction Co	27 Dec 1965	25 Oct 1966	12 Dec 1970	AA
NASHVILLE	LPD 13	Lockheed SB & Construction Co	14 Mar 1966	7 Oct 1967	14 Feb 1970	AA
TRENTON	LPD 14	Lockheed SB & Construction Co	8 Aug 1966	3 Aug 1968	6 Mar 1971	AA
PONCE	LPD 15	Lockheed SB & Construction Co	31 Oct 1966	20 May 1970	10 July 1971	AA

Displacement, tons: 9,130 light; 16,500-17,244 full load

Dimensions, feet (metres): 570 × 100 (84 hull) × 23 *(173.8 × 30.5 (25.6) × 7)*

Main machinery: 2 Foster-Wheeler boilers (Babcock & Wilcox in LPD 5 and 12); 600 psi *(42.3 kg/cm²)*; 870°F *(467°C)*; 2 De Laval turbines; 24,000 hp *(18 MW)*; 2 shafts

Speed, knots: 21. **Range, miles:** 7,700 at 20 kt.

Complement: 420 (24 officers); Flag 90 (in LPD 7-13)

Military lift: 930 troops (840 only in LPD 7-13); 9 LCM 6s or 4 LCM 8s or 2 LCAC or 20 LVTs. 4 LCPL/LCVP

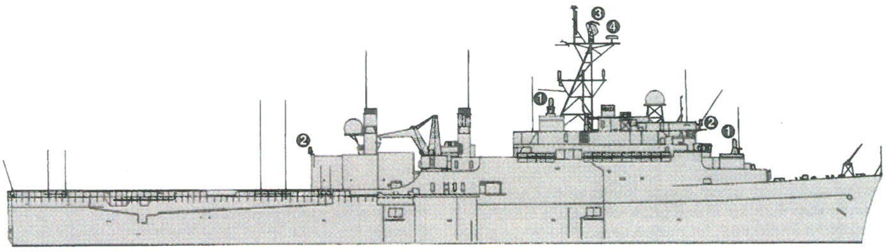
Guns: 2 General Electric/General Dynamics 20 mm/76 6-barrelled Vulcan Phalanx Mk 15 ❶; 3,000 rds/min (4,500 in Block 1) combined to 1.5 km.
2—25 mm Mk 38. 8—12.7 mm MGs.

Countermeasures: Decoys: 4 Loral Hycor SRBOC 6-barrelled Mk 36; IR flares and chaff to 4 km *(2.2 n miles)*.
ESM: SLQ-32(V)1; intercept. May be updated to (V)2.

Combat data systems: SATCOM ❷, WSC-3 (UHF) (see Data Systems at front of section).

Radars: Air search: Lockheed SPS-40B/C ❸; B-band.
Surface search: Norden SPS-67 ❹; G-band.
Navigation: Raytheon SPS-64(V)9; I-band.
Tacan: URN 25. IFF: Mk XII UPX-29.

Helicopters: Up to 6 CH-46D/E Sea Knight can be carried. Hangar for only 1 light (not in LPD 4).



DENVER *(Scale 1 : 1,500), Ian Sturton /* 0016471

Programmes: LPD 4-6 were authorised in the FY62 new construction programme, LPD 7-10 in FY63, LPD 12 and 13 in FY64, LPD 14 and LPD 15 in FY65.

Modernisation: Modernisation carried out in normal maintenance periods from FY87. This included fitting two Phalanx, SPS-67 radar replacing SPS-10 and updating EW capability. 3 in guns have been removed. Three ships to receive platform, air-defence and communications upgrades to extend service lives.

Structure: LPD 7-13 have an additional bridge and are fitted as flagships. One small telescopic hangar. There are structural variations in the positions of guns and electronic equipment in different ships of the class. Flight deck is 168 ft *(51.2 m)* in length. Well-deck 394 × 50 ft *(120.1 × 15.2 m)*. Communications domes are not uniformly fitted.

Operational: A typical operational load might include one Seahawk, two Sea Knight, two Twin Huey, four Sea Cobra helicopters and one Cyclone patrol craft. Pioneer UAV carried in six ships (LPDs 4, 7, 9, 10, 12 and 15). LPD 10 based at Sasebo, Japan.

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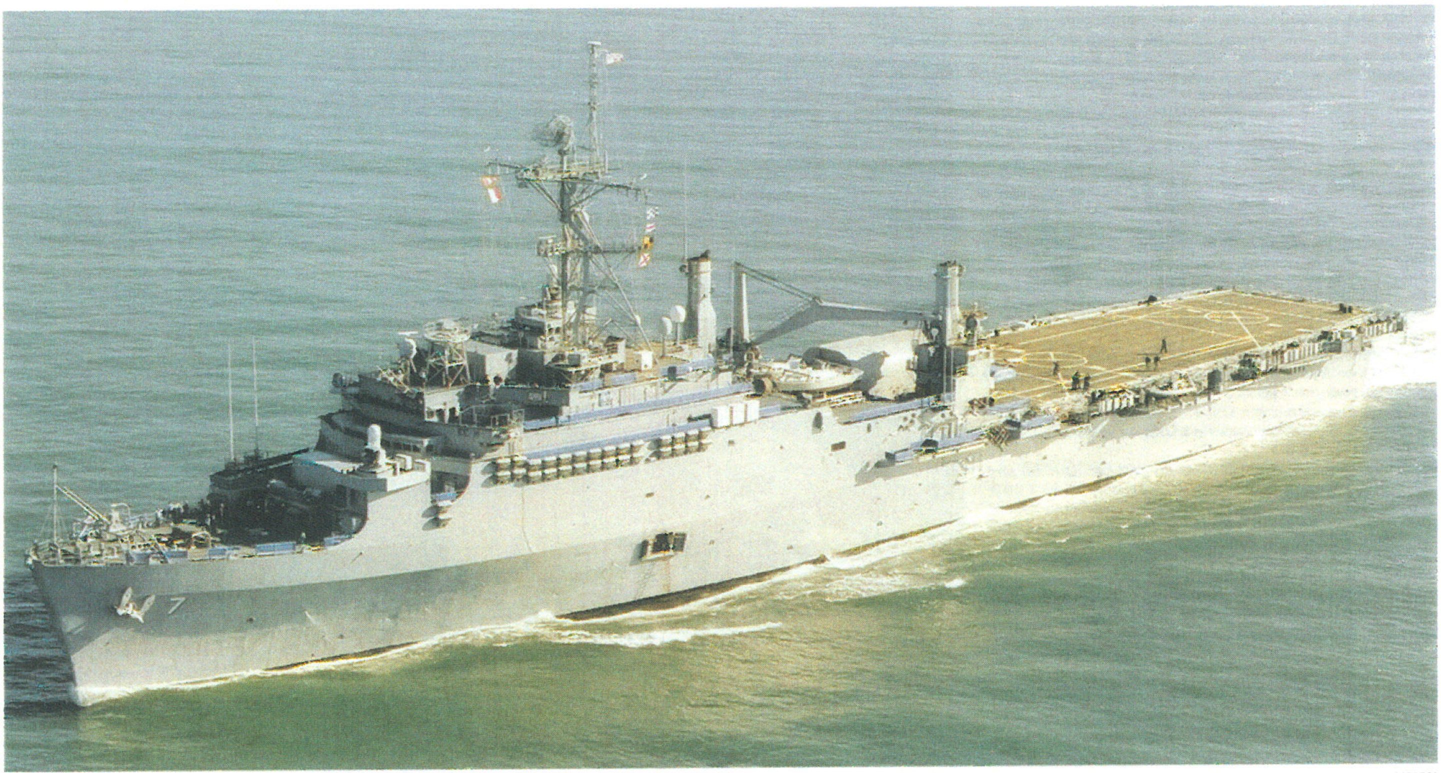
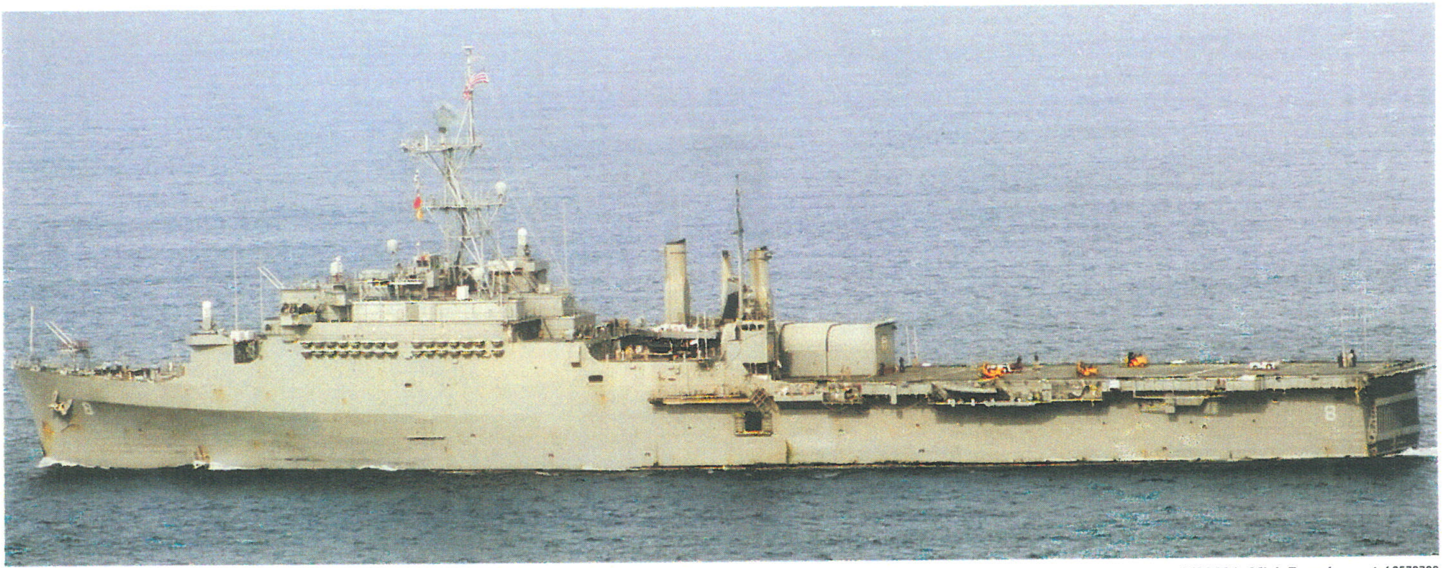


CLEVELAND *10/2003*, Frank Findler /* 0572791



DUBUQUE *6/2003*, Mick Prendergast /* 0572790

8 WHIDBEY ISLAND and 4 HARPERS FERRY CLASSES (DOCK LANDING SHIPS) (LSDHM and LSD-CV)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*
WHIDBEY ISLAND	LSD 41	Lockheed SB & Construction Co	4 Aug 1981	10 June 1983	9 Feb 1985	AA
GERMANTOWN	LSD 42	Lockheed SB & Construction Co	5 Aug 1982	29 June 1984	8 Feb 1986	PA
FORT McHENRY	LSD 43	Lockheed SB & Construction Co	10 June 1983	1 Feb 1986	8 Aug 1987	PA
GUNSTON HALL	LSD 44	Avondale Industries	26 May 1986	27 June 1987	22 Apr 1989	AA
COMSTOCK	LSD 45	Avondale Industries	27 Oct 1986	16 Jan 1988	3 Feb 1990	PA
TORTUGA	LSD 46	Avondale Industries	23 Mar 1987	15 Sep 1988	17 Nov 1990	AA
RUSHMORE	LSD 47	Avondale Industries	9 Nov 1987	6 May 1989	1 June 1991	PA
ASHLAND	LSD 48	Avondale Industries	4 Apr 1988	11 Nov 1989	9 May 1992	AA
HARPERS FERRY	LSD 49	Avondale Industries	15 Apr 1991	16 Jan 1993	7 Jan 1995	PA
CARTER HALL	LSD 50	Avondale Industries	11 Nov 1991	2 Oct 1993	30 Sep 1995	AA
OAK HILL	LSD 51	Avondale Industries	21 Sep 1992	11 June 1994	8 June 1996	AA
PEARL HARBOR	LSD 52	Avondale Industries	27 Jan 1995	24 Feb 1996	30 May 1998	PA

Displacement, tons: 11,125 light; 15,939 (LSD 41-48), 16,740 (LSD 49 onwards) full load
Dimensions, feet (metres): 609.5 × 84 × 20.5 *(185.8 × 25.6 × 6.3)*
Main machinery: 4 Colt SEMT-Pielstick 16 PC2.5 V 400 diesels; 33,000 hp(m) *(24.6 MW)* sustained; 2 shafts; cp props
Speed, knots: 22. **Range, miles:** 8,000 at 18 kt
Complement: 413 (21 officers)
Military lift: 402 (+102 surge) troops; 2 (CV) or 4 LCACs, or 9 (CV) or 21 LCM 6, or 1 (CV) or 3 LCUs, or 64 LVTs. 2 LCPL
Cargo capacity: 5,000 cu ft for marine cargo, 12,500 sq ft for vehicles (including four preloaded LCACs in the well-deck). The 'cargo version' has 67,600 cu ft for marine cargo, 20,200 sq ft for vehicles but only two or three LCACs. Aviation fuel, 90 tons.

Missiles: 2 GDC/Hughes Mk 49 RAM ①; passive IR/anti-radiation homing to 9.6 km *(5.2 n miles)* at 2 Mach; warhead 9.1 kg. Being fitted in all.
Guns: 2 General Electric/General Dynamics 20 mm/76 6-barrelled Vulcan Phalanx Mk 15 ②; 3,000 rds/min (4,500 in Block 1) combined to 1.5 km.
2—25 mm Mk 38. 6—12.7 mm MGs.
Countermeasures: Decoys: 4 Loral Hycor SRBOC 6-barrelled Mk 36 and Mk 50; IR flares and chaff. SLQ-25 Nixie.
ESM: SLQ-32(V)1 or (V)2; intercept. SLQ-49.
Combat data systems: SATCOM SRR-1, WSC-3 (UHF) (see Data Systems at front of section). SSDS Mk 1.
Radars: Air search: Raytheon SPS-49(V)5 ③; C-band.
Surface search: Norden SPS-67V ④; G-band.
Navigation: Raytheon SPS-64(V)9; I/J-band.
Tacan: URN 25. IFF: Mk XII UPX-29/UPX-36.

Helicopters: Platform only for 2 CH-53 Sea Stallion.

Programmes: Originally it was planned to construct six ships of this class as replacements for the 'Thomaston' class LSDs. Eventually, the level of 'Whidbey Island' class ships was established at eight, with four additional cargo-carrying variants of that class to provide increased cargo-carrying capability. The first cargo variant, LSD 49, was authorised and funded in the FY88 budget; LSD 50 in FY89 and LSD 51 in FY91. The fourth was authorised in FY92 but not ordered until 12 October 1993.
Modernisation: A Quick Reaction Combat System (QRCC)/Ship Self-Defense System (SSDS) was installed and successfully demonstrated in LSD 41 in 1993. During the QRCC demonstrations, the ship's SPS-49, SLQ-32, RAM and Phalanx were successfully integrated via SSDS. All ships of the class fitted with SSDS Mk 1.
Structure: Based on the earlier 'Anchorage' class. One 60 and one 20 ton crane. Well-deck measures 440 × 50 ft *(134.1 × 15.2 m)* in the LSD but is shorter in the Cargo Variant (CV). The cargo version is a minimum modification to the LSD 41 design. Changes in that design include additional troop magazines, air conditioning, piping and hull structure; the forward Phalanx is forward of the bridge, RAM is on the bridge roof, and there is only one crane. There is approximately 90 per cent commonality between the two classes.
Operational: LSDs 43 and 49 are based at Sasebo.

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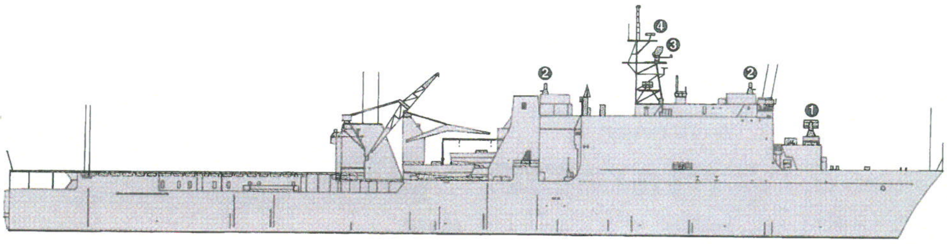

ASHLAND

(Scale 1 : 1,500), Ian Sturton / 0053362

TORTUGA

5/2003, A Sharma* / 0572789

PEARL HARBOR

6/2003, Mick Prendergast* / 0572788

COMSTOCK

10/2002, Frank Findler / 0529981

74 LANDING CRAFT AIR CUSHION (LCAC)

Displacement, tons: 87.2 light; 170-182 full load
Dimensions, feet (metres): 88 oa (on-cushion) (81 between hard structures) × 47 beam (on-cushion) (43 beam hard structure) × 2.9 draught (off-cushion) *(26.8 (24.7) × 14.3 (13.1) × 0.9)*
Main machinery: 4 Avco-Lycoming TF-40B gas turbines; 2 for propulsion and 2 for lift; 14,800 hp *(11.03 MW)* sustained; 4 Enhanced TF-40B gas turbines (SLEP craft); 16,000 hp *(12 MW)* sustained; 2 shrouded reversible-pitch airscrews (propulsion); 4 double entry fans, centrifugal lift
Speed, knots: 40 (loaded). **Range, miles:** 300 at 35 kt; 200 at 40 kt
Complement: 5
Military lift: 24 troops; 1 MBT or 60-75 tons
Radars: Navigation: Sperry Bridgemaster E; I-band.

Programmes: Built by Textron Marine Systems and Avondale Gulfport. A total of 90 craft delivered 1984-1997. The final craft LCAC 91 delivered in 2001 in SLEP configuration.
Modernisation: 72 in-service craft to receive Ship Life Extension Period (SLEP) from 2002-2016. The programme includes the installation of more powerful engines to provide greater lift capacity, an improved deep skirt for better handling in heavier sea states and an integrated navigation suite for precise navigation. Four craft are to be upgraded in FY04, five in FY05 and six craft in subsequent years.
Structure: Incorporates the best attributes of the JEFF(A) and JEFF(B) learned from over five years of testing the two prototypes. Bow ramp 28.8 ft, stern ramp 15 ft. Cargo space capacity is 1,809 sq ft. Noise and dust levels are high and if disabled the craft is not easy to tow. Spray suppressors have been added to the skirt to reduce interference with the driver's vision. 30 mm Gatling guns can be fitted.
Operational: Ship classes capable of carrying the LCAC are 'Wasp' (three), 'Tarawa' (one), 'Austin' (one), 'Whidbey Island' (four), 'Harpers Ferry' (two) and 'San Antonio' (two). A portable transport module can be carried on the cargo deck to transport up to 180 troops. It is claimed that LCACs are capable of accessing 70 per cent of the world's coastlines compared to about 15 per cent for conventional landing craft. Some limitations in very rough seas. Shore bases on each coast at Little Creek, VA and Camp Pendleton, CA.
Sales: Six to Japan. One of a similar type built by South Korea.

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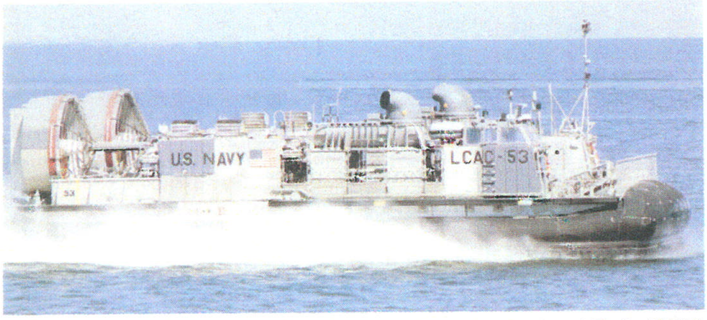

LCAC 53 *9/2002, Winter & Findler* / 0529980

LCAC 45 *3/2003*, A Sharma* / 0572787

7 + 1 (1) FRANK S BESSON CLASS: LOGISTIC SUPPORT VESSELS (LSV-ARMY)

Name	*No*	*Builders*	*Commissioned*
GENERAL FRANK S BESSON JR	LSV 1	Moss Point Marine, MS	18 Dec 1987
CW 3 HAROLD C CLINGER	LSV 2	Moss Point Marine, MS	20 Feb 1988
GENERAL BREHON B SOMERVELL	LSV 3	Moss Point Marine, MS	2 Apr 1988
LT GENERAL WILLIAM B BUNKER	LSV 4	Moss Point Marine, MS	18 May 1988
MAJOR GENERAL CHARLES P GROSS	LSV 5	Moss Point Marine, MS	30 Apr 1991
SPECIALIST 4 JAMES A LOUX	LSV 6	Moss Point Marine, MS	16 Dec 1994
SSGT ROBERT T KURODA	LSV 7	VT Halter Marine	Nov 2003
MAJOR GENERAL ROBERT SMAILS	LSV 8	VT Halter Marine	Nov 2004

Displacement, tons: 4,265 full load
Dimensions, feet (metres): 272.8 × 60 × 12 *(83.1 × 18.3 × 3.7)*
314 (LSV 7) × 60.0 × 12.0 *(95.7 × 18.3 × 36.6)*
Main machinery: 2 GM EMD 16-645E2 diesels; 3,900 hp *(2.9 MW)* sustained; 2 shafts; Schottel bow thruster; 250 hp *(187 kW)*
Speed, knots: 11.6. **Range, miles:** 8,300 at 11 kt
Complement: 30 (6 officers)
Military lift: 2,280 tons of vehicles including 26 M-1 tanks, containers or general cargo
Radars: Navigation: Raytheon SPS-64(V)2; I-band.

Comment: First one approved in FY85, second in FY87, remainder from Army reserve funds. Army owned ro-ro design with 10,500 sq ft of deck space for cargo. Capable of beaching with 4 ft over the ramp on a 1:30 offshore gradient with a payload of 900 tons of cargo. Three are based at Fort Eustis, Virginia, two in Hawaii and LSV-3 is with the National Guard at Tacoma, Washington. Two modified ships of the class built for the Philippines Navy in 1993-94.

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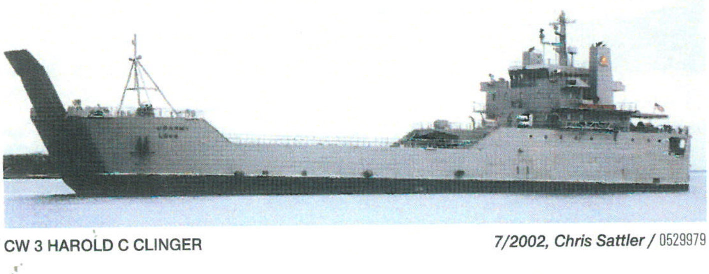

CW 3 HAROLD C CLINGER *7/2002, Chris Sattler* / 0529979

13 MECHANISED LANDING CRAFT: LCM 6 TYPE

Displacement, tons: 64 full load
Dimensions, feet (metres): 56.2 × 14 × 3.9 *(17.1 × 4.3 × 1.2)*
Main machinery: 2 Detroit 6-71 diesels; 348 hp *(260 kW)* sustained or 2 Detroit 8V-71 diesels; 460 hp *(344 kW)* sustained; 2 shafts
Speed, knots: 9. **Range, miles:** 130 at 9 kt
Complement: 5
Military lift: 34 tons or 80 troops

Comment: Welded steel construction. Used for various utility tasks. Numbers are reducing.

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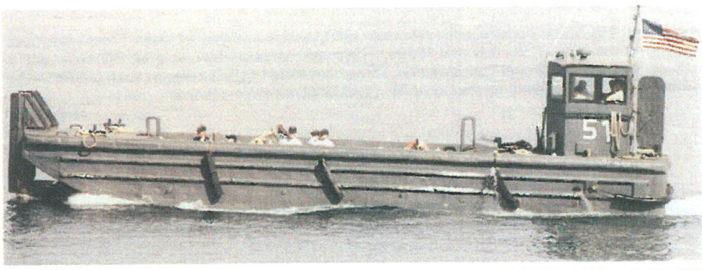

LCM 6 *6/1997, J W Currie* / 0016482

35 LCU 2000 CLASS: UTILITY LANDING CRAFT (LCU-ARMY)

LCU 2001-2035

Displacement, tons: 1,102 full load
Dimensions, feet (metres): 173.8 × 42 × 8.5 *(53 × 12.8 × 2.6)*
Main machinery: 2 Cummins KTA50-M diesels; 2,500 hp *(1.87 MW)* sustained; 2 shafts; bow thruster
Speed, knots: 11.5. **Range, miles:** 4,500 at 11.5 kt
Complement: 13 (2 officers)
Military lift: 350 tons
Radars: Navigation: 2 Raytheon SPS-64; I-band.

Comment: Order placed with Lockheed by US Army 11 June 1986. First one completed 21 February 1990 by Moss Point Marine. The 2000 series have names, some of which duplicate naval ships. These are the first LCUs to have been built to an Army specification. 14 are active, 12 in reserve, eight prepositioned and one used for training.

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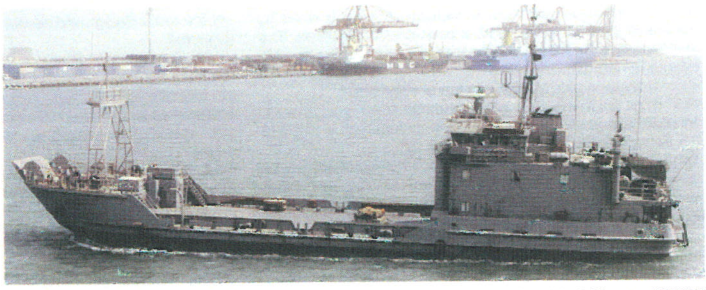

LCU 2024 *7/2003*, A Sharma* / 0572813

LCU 2029 *6/2003*, A Sharma* / 0572815

89 MECHANISED LANDING CRAFT: LCM 8 TYPE

Displacement, tons: 65.6 light; 135 full load
Dimensions, feet (metres): 73.7 × 21 × 5.2 *(22.5 × 6.4 × 1.6)*
Main machinery: 2 Detroit 6-71 diesels; 348 hp *(260 kW)* sustained or 2 Detroit 12V-71 diesels; 400 hp *(298 kW)* sustained; 2 shafts
Speed, knots: 11. **Range, miles:** 190 at 9 kt full load
Complement: 4
Military lift: 60 tons or 1 tank or 110 fully equipped troops or 150 non-combat troops

Comment: Naval craft are for use in amphibious ships. The last 12 were built in 1993-94. 22 similar craft are used by the Army.

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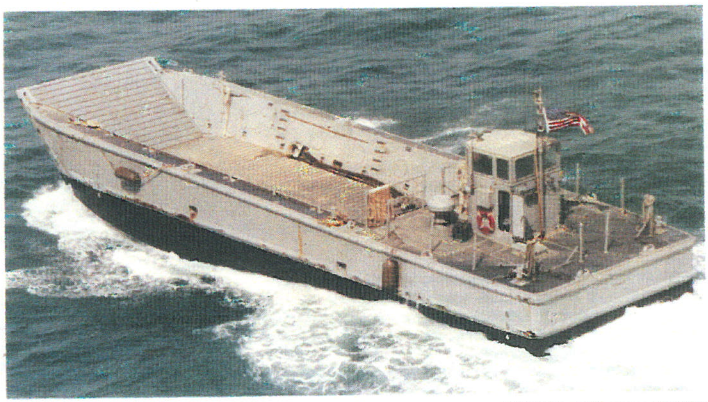

LCM 8 *5/2003*, A Sharma* / 0572786

37 LCU 1600 CLASS: UTILITY LANDING CRAFT (LCU-ARMY (2) and NAVY (35))

Displacement, tons: 200 light; 375 (437, LCU 1680-81) full load
Dimensions, feet (metres): 134.9 × 29 × 6.1 *(41.1 × 8.8 × 1.9)*
Main machinery: 4 Detroit 6-71 diesels; 696 hp *(519 kW)* sustained; 2 shafts; Kort nozzles
2 Detroit 12V-71 diesels (LCU 1680-1681); 680 hp *(508 kW)* sustained; 2 shafts; Kort nozzles
Speed, knots: 11. **Range, miles:** 1,200 at 8 kt
Complement: 14 (2 officers)
Military lift: 134 tons; 3 M103 (64 tons) or 2—M1A1 tanks or 350 troops
Guns: 4—12.7 mm MGs.
Radars: Navigation: Furuno; I-band.

Comment: Steel hulled construction. Versatile craft used for a variety of tasks. Most were built between the mid-1960s and mid-1980s. There are no plans for more of this type and a replacement craft is under consideration. Three converted to Diver Support Craft (ASDV). LCU 1667 and 1675 operated by the US Army. Two USN craft are in reserve.

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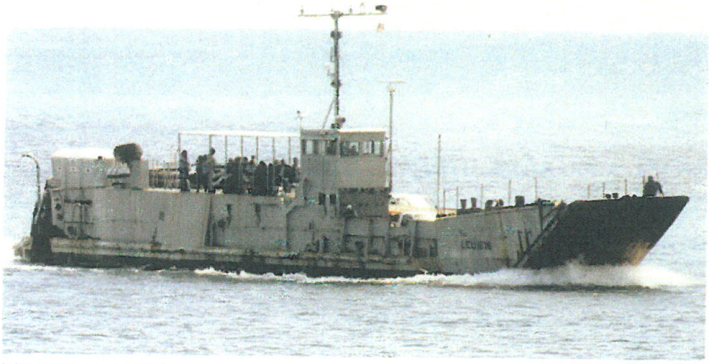
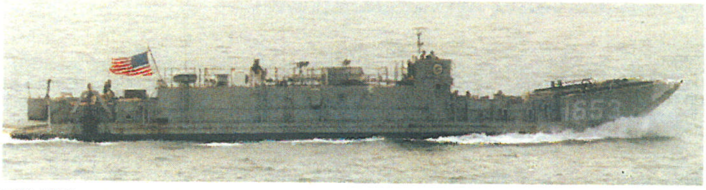

LCU 1600 class (Army) *2/2001, M Declerck* / 0529975


LCU 1653 *3/2003*, A Sharma* / 0572744

145 LANDING CRAFT PERSONNEL (LCPL)

Displacement, tons: 11 full load
Dimensions, feet (metres): 36 × 12.1 × 3.8 *(11 × 3.7 × 1.2)*
Main machinery: 1 GM 8V-71TI diesel; 425 hp *(317 kW)* sustained; 1 shaft
Speed, knots: 20. **Range, miles:** 150 at 20 kt
Complement: 3
Military lift: 17 troops
Radars: Navigation: Marconi LN66; I-band.

Comment: There are 13 Mk 11, 105 Mk 12, 15 Mk 13 and 12 11 m LCPLs. Details given are for Mk 12 and 13. For use as control craft and carried aboard LHA, LPD and LSD classes. 33 are active.

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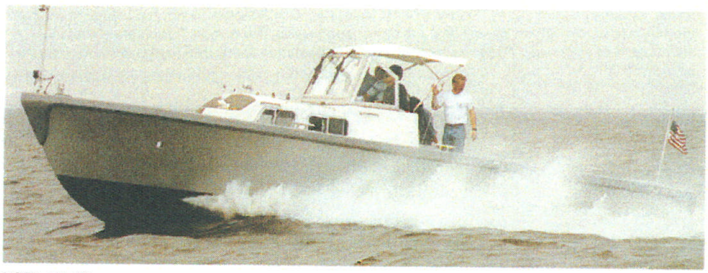
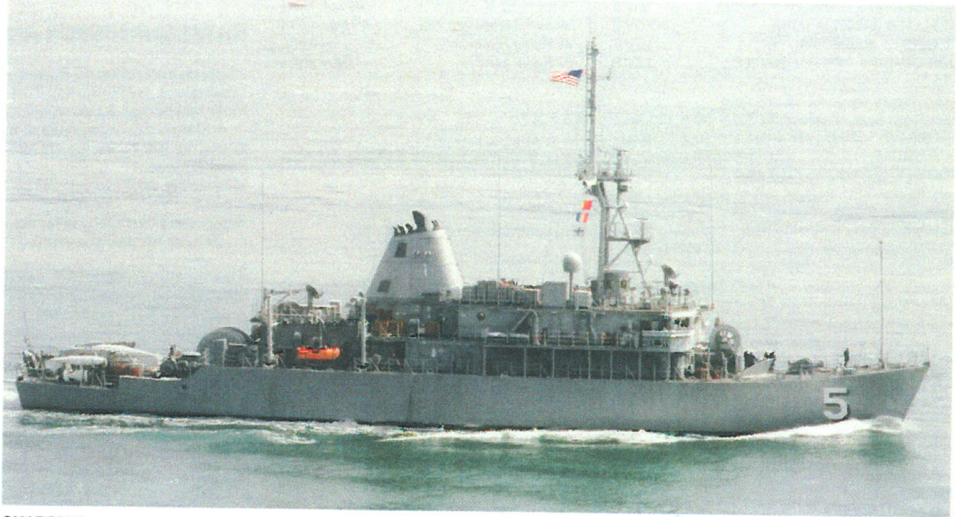

LCPL Mk 13 *4/1991, Bollinger* / 0084143

MINE WARFARE FORCES

Notes: (1) There are no surface minelayers. Mining is done by carrier-based aircraft, land-based aircraft and submarines. The mine inventory includes Mk 56 moored influence mines, the Mk 67 submarine launched mobile mine (SLMM) and the Quickstrike series of bottom mines. Mk 56 is being phased out.
(2) NRF ships are manned by active and reserve crews.
(3) MH-53E Sea Stallion helicopters can be deployed in LHDs or by C-5 aircraft for mine countermeasures.
(4) The Long-term Mine Reconnaissance System (LMRS) will be an autonomous UUV, launched from a 'Los Angeles' class submarine and thereafter from a 'Virginia' class SSN, to provide covert mine reconnaissance capability. Boeing has been contracted to design and develop the LMRS. An inventory of 12 is expected.
(5) Marine Mammal Systems (MMS) uses trained dolphins and sea lions for mine detection, swimmer protection, and recovery of exercise mines and torpedoes. The dolphins can be transported by C-5 aircraft or amphibious ships. The MMS is the only operational method of detecting and neutralising buried mines.
(6) A Remote Minehunting System (RMS) is being developed for Arleigh Burke Flight IIA destroyers (DDG 91-96). The system is an unmanned semi-submersible. There is an over-the-horizon radio link and an AQS-20X VDS. The RMS is 23 ft, weighs 14,000 lb and has an endurance of 24 hours at 12 kt. RMS is in Engineering and Manufacturing Development Phase. In-service date is 2005.
(7) Rapid Airborne Mine Clearance System (RAMICS) is under development. RAMICS is to be operated from a MH-60S helicopter and consists of an electro-optic detection and ranging system and a 30 mm gun system to destroy near-surface and floating moored mines.
(8) Organic Airborne and Surface Influence Sweep (OASIS) is under development with developmental testing to complete in 2005.

14 AVENGER CLASS: MINE COUNTERMEASURES VESSELS (MCM/MHSO)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*
AVENGER	MCM 1	Peterson Builders Inc	3 June 1983	15 June 1985	12 Sep 1987	NRF
DEFENDER	MCM 2	Marinette Marine Corp	1 Dec 1983	4 Apr 1987	30 Sep 1989	NRF
SENTRY	MCM 3	Peterson Builders Inc	8 Oct 1984	20 Sep 1986	2 Sep 1989	NRF
CHAMPION	MCM 4	Marinette Marine Corp	28 June 1984	15 Apr 1989	27 July 1991	NRF
GUARDIAN	MCM 5	Peterson Builders Inc	8 May 1985	20 June 1987	16 Dec 1989	PA
DEVASTATOR	MCM 6	Peterson Builders Inc	9 Feb 1987	11 June 1988	6 Oct 1990	AA
PATRIOT	MCM 7	Marinette Marine Corp	31 Mar 1987	15 May 1990	18 Oct 1991	PA
SCOUT	MCM 8	Peterson Builders Inc	8 June 1987	20 May 1989	15 Dec 1990	AA
PIONEER	MCM 9	Peterson Builders Inc	5 June 1989	25 Aug 1990	7 Dec 1992	AA
WARRIOR	MCM 10	Peterson Builders Inc	25 Sep 1989	8 Dec 1990	7 Apr 1993	AA
GLADIATOR	MCM 11	Peterson Builders Inc	7 July 1990	29 June 1991	18 Sep 1993	NRF
ARDENT	MCM 12	Peterson Builders Inc	22 Oct 1990	16 Nov 1991	18 Feb 1994	AE
DEXTROUS	MCM 13	Peterson Builders Inc	11 Mar 1991	20 June 1992	9 July 1994	AE
CHIEF	MCM 14	Peterson Builders Inc	19 Aug 1991	12 June 1993	5 Nov 1994	AA


GUARDIAN *3/2002, Hachiro Nakai* / 0530008

Displacement, tons: 1,379 full load
Dimensions, feet (metres): 224.3 × 38.9 × 12.2 *(68.4 × 11.9 × 3.7)*
Main machinery: 4 Waukesha L-1616 diesels (MCM 1-2); 2,600 hp(m) *(1.91 MW)* or 4 Isotta Fraschini ID 36 SS 6V AM diesels (MCM 3 onwards); 2,280 hp(m) *(1.68 MW)* sustained; 2 Hansome Electric motors; 400 hp(m) *(294 kW)* for hovering; 2 shafts; cp props; 1 Omnithruster hydrojet; 350 hp *(257 kW)*
Speed, knots: 13.5. **Range, miles:** 2,500 at 10 kt
Complement: 84 (8 officers)

Guns: 2—12.7 mm Mk 26 MGs.
Countermeasures: MCM: 2 SLQ-48; includes Honeywell/Hughes ROV mine neutralisation system, capable of 6 kt (1,500 m cable with cutter (MP1), and countermining charge) (MP 2). SLQ-37(V)3; magnetic/acoustic influence sweep equipment. Oropesa SLQ-38 Type 0 Size 1; mechanical sweep.
Combat data systems: SATCOM SRR-1; WSC-3 (UHF). GEC/Marconi Nautis M in last two ships (and to be fitted in all), includes SSN 2 (being replaced by ICWS) PINS command system and control. USQ-119(V) NTCS-A, UHF Dama and OTCIXS provide JMCIS connectivity.
Radars: Surface search: ISC Cardion SPS-55; I/J-band.
Navigation: Raytheon SPS-66(V)9 or LN66; I-band. Both being replaced by SPS-73.
Sonars: Raytheon/Thomson Sintra SQQ-32(V)3; VDS; active minehunting; high frequency.

Programmes: The contract for the prototype MCM was awarded in June 1982. The last three were funded in FY90.
Modernisation: Integrated Combat Weapon System (ICWS) Block 1 to upgrade existing systems. Integrated Ship Control System (ISCS) installed in all hulls.
Structure: The hull is constructed of oak, Douglas fir and Alaskan cedar, with a thin coating of fibreglass on the outside, to permit taking advantage of wood's low magnetic signature. A problem of engine rotation on the Waukesha diesels in MCM 1-2 was resolved; however, those engines have been replaced in the rest of the class by low magnetic engines manufactured by Isotta-Fraschini of Milan, Italy. Fitted with SSN2(V) Precise Integrated Navigation System (PINS).
Operational: *Avenger* fitted with the SQQ-32 for Gulf operations in 1991 and all of the class have been retrofitted. Two transferred to NRF in 1995, two more in 1996. *Ardent* and *Dextrous* permanently stationed in the Gulf from March 1996, and *Guardian* and *Patriot* are at Sasebo, Japan. The remainder are based at Ingleside, Texas.

UPDATED

12 OSPREY CLASS (MINEHUNTERS COASTAL) (MHC)

Name	*No*	*Builders*	*Launched*	*Commissioned*	*F/S*
OSPREY	MHC 51	Intermarine, Savannah	23 Mar 1991	20 Nov 1993	NRF
HERON	MHC 52	Intermarine, Savannah	21 Mar 1992	6 Aug 1994	NRF
PELICAN	MHC 53	Avondale Industries	27 Feb 1993	18 Nov 1995	NRF
ROBIN	MHC 54	Avondale Industries	11 Sep 1993	11 May 1996	NRF
ORIOLE	MHC 55	Intermarine, Savannah	22 May 1993	13 Sep 1995	NRF
KINGFISHER	MHC 56	Avondale Industries	18 June 1994	26 Oct 1996	NRF
CORMORANT	MHC 57	Avondale Industries	21 Oct 1995	12 Apr 1997	NRF
BLACK HAWK	MHC 58	Intermarine, Savannah	27 Aug 1994	11 May 1996	NRF
FALCON	MHC 59	Intermarine, Savannah	3 June 1995	26 Oct 1997	NRF
CARDINAL	MHC 60	Intermarine, Savannah	9 Mar 1996	17 Oct 1997	AE
RAVEN	MHC 61	Intermarine, Savannah	28 Sep 1996	4 Apr 1998	AE
SHRIKE	MHC 62	Intermarine, Savannah	24 May 1997	13 Mar 1999	NRF

Displacement, tons: 930 full load
Dimensions, feet (metres): 187.8 × 35.9 × 9.5 *(57.2 × 11 × 2.9)*
Main machinery: 2 Isotta Fraschini ID 36 SS 8V AM diesels; 1,600 hp(m) *(1.18 MW)* sustained; 2 Voith-Schneider props; 3 Isotta Fraschini ID 36 diesel generators; 984 kW
Speed, knots: 12. **Range, miles:** 1,500 at 10 kt
Complement: 52 (6 officers)

Guns: 2—12.7 mm MGs.
Countermeasures: MCM: Alliant SLQ-48 mine neutralisation system ROV (with 1,070 m cable). Degaussing DGM-4.
Combat data systems: Unisys SYQ 13 and SYQ 109; integrated combat and machinery control system. USQ-119(V) NTCS-A, UHF Dama, and OTCIXS provide GCCS connectivity.
Radars: Surface search: Raytheon SPS-64(V)9; I-band.
Navigation: R41XX; I-band.
Sonars: Raytheon/Thomson Sintra SQQ-32(V)3; VDS; active minehunting; high frequency.

Programmes: A design contract for 'Lerici' class mine hunters was awarded in August 1986 followed by a construction contract with Intermarine USA in May 1987 for eight of the 12 ships of the class. On 2 October 1989 Avondale, Gulfport was named as the second construction source. Contracts were awarded for four ships which were delivered between 1995 and 1997.
Structure: Construction is of monocoque GRP throughout hull, with frames eliminated. Main machinery is mounted on GRP cradles and provided with acoustic enclosures. SQQ-32 is deployed from a central well forward. Fitted with Voith cycloidal propellers which eliminate need for forward thrusters during station keeping.
Operational: All are NRF based at Ingleside, Texas, except MHC-60 and MHC-61 which are based in Bahrain.

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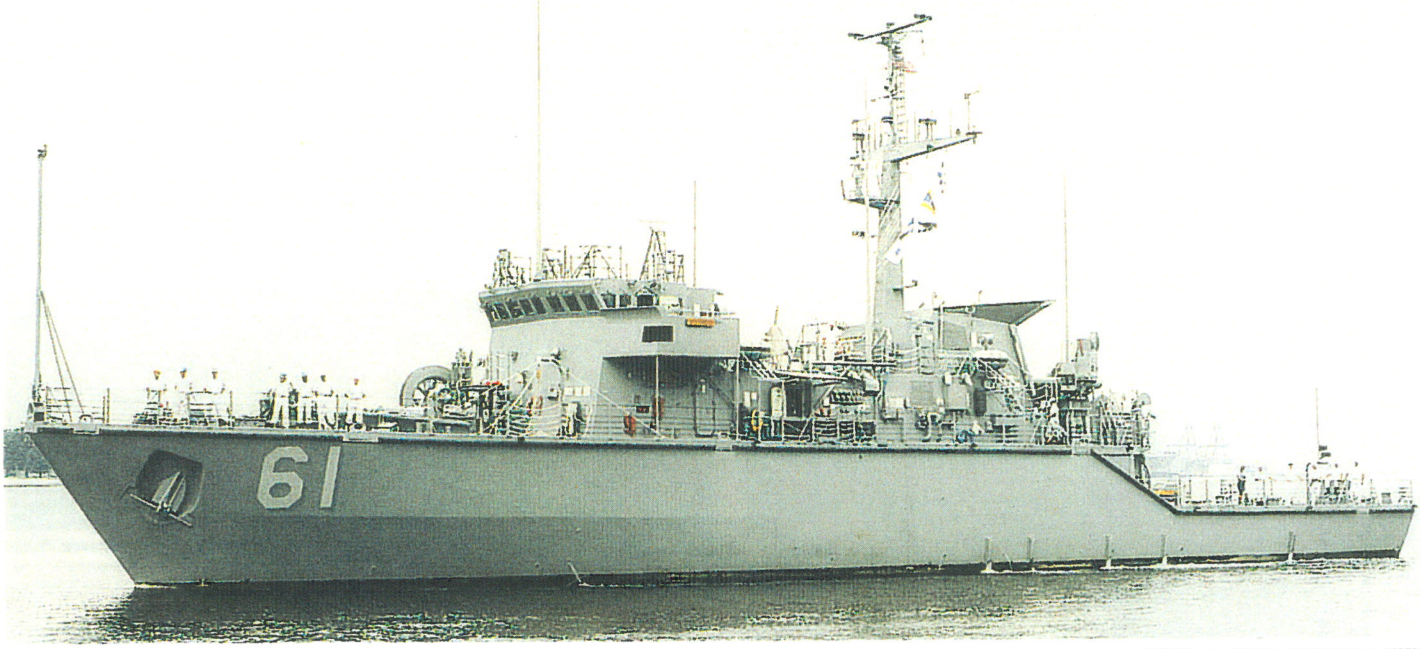


RAVEN

7/1998, van Ginderen Collection / 0053372

PATROL FORCES

Notes: (1) The Norwegian patrol craft *Skjold* was loaned for evaluation for one year until September 2002. It took part in Fleet Battle Experiment Juliet with *Joint Venture* and *Slice*.
(2) 'Spartan' is a technology demonstrator programme to prove utility of unmanned surface craft. It is envisaged that such craft will be capable of conducting mine warfare, force protection (including surveillance and reconnaissance) and anti-surface warfare. A prototype, a 7 m RHIB installed with navigation, communications and remote control equipment, underwent sea trials in 2003 which included embarkation in USS *Gettysburg* as part of the *Enterprise* carrier strike group.

13 CYCLONE CLASS (PATROL COASTAL SHIPS) (PBFM)

Name	*No*	*Builders*	*Commissioned*	*F/S*
TEMPEST	PC 2	Bollinger, Lockport	21 Aug 1993	AA
HURRICANE	PC 3	Bollinger, Lockport	15 Oct 1993	PA
MONSOON	PC 4	Bollinger, Lockport	22 Jan 1994	PA
TYPHOON	PC 5	Bollinger, Lockport	12 Feb 1994	AA
SIROCCO	PC 6	Bollinger, Lockport	11 June 1994	AA
SQUALL	PC 7	Bollinger, Lockport	4 July 1994	PA
ZEPHYR	PC 8	Bollinger, Lockport	15 Oct 1994	PA
CHINOOK	PC 9	Bollinger, Lockport	28 Jan 1995	AA
FIREBOLT	PC 10	Bollinger, Lockport	10 June 1995	AA
WHIRLWIND	PC 11	Bollinger, Lockport	1 July 1995	AA
THUNDERBOLT	PC 12	Bollinger, Lockport	7 Oct 1995	AA
SHAMAL	PC 13	Bollinger, Lockport	27 Jan 1996	AA
TORNADO	PC 14	Bollinger, Lockport	15 May 2000	AA

Displacement, tons: 354 full load; 386 full load (PC 2, 8, 13, 14)
Dimensions, feet (metres): 170.3; 179 (PC 2, 8, 13, 14) × 25.9 × 7.9 *(51.9; 54.6 × 7.9 × 2.4)*
Main machinery: 4 Paxman Valenta 16RP200CM diesels; 13,400 hp *(10 MW)* sustained; 4 shafts
Speed, knots: 35. **Range, miles:** 2,500 at 12 kt
Complement: 28 (4 officers) plus 8 SEALs
Missiles: SAM: 1 sextuple Stinger mounting.
Guns: 1 Bushmaster 25 mm Mk 38. 1 Bushmaster 25 mm/87 Mk 96 (aft). 4—12.7 mm MGs. 4—7.62 mm MGs. 2—40 mm Mk 19 grenade launchers (MGs and grenade launchers are interchangeable).
Countermeasures: Decoys: 2 Mk 52 sextuple and/or Wallop Super Barricade Mk 3 chaff launchers.
ESM: Privateer APR-39; radar warning. Sensytech Bobcat.
Weapons control: Marconi VISTAR IM 405 IR system.
Radars: Surface search: 2 Sperry RASCAR; E/F/I/J-band.
Sonars: Wesmar; hull-mounted; active; high frequency.

Programmes: Contract awarded for eight in August 1990 and five more in July 1991.
Structure: Design based on Vosper Thornycroft 'Ramadan' class modified for USN requirements including 1 in armour on superstructure. A stabilised weapon platform has been developed for Stinger. The craft have a slow speed loiter capability. Swimmers can be launched from a platform at the stern. Two SEAL raiding craft and one RIB are carried. PC 14 is fitted with advanced ESM, a rocket launcher, better communications and a Mk 96 stabilised weapon platform. It has also been modified, together with PC 2, PC 4, PC 8 and PC 13, to incorporate a semi-dry well, boat ramp and stern gate to facilitate deployment and recovery of a fully loaded RIB while the ship is making way.

WHIRLWIND

9/2002, Winter & Findler / 0529974

SQUALL

10/2002, M Mazumdar / 0529973

Operational: Can be operated in pairs with a 12-man maintenance team in two vans ashore. Tactical control of six ships (with USN crews) transferred to Coast Guard in November 2001 for homeland security duties. The remaining seven similarly transferred in January 2002. Operational control transferred from Special Operations Command to the Atlantic and Pacific Fleets on 1 October 2002. A maintenance programme keeps the ships at full readiness. The stern-ramp fitted ships (PC 2, PC 4, PC 8, PC 13 and PC 14) are to be transferred to the USCG 2005-08. The remaining ships are to be retained by the USN until at least 2008.
Sales: PC1 (*Cyclone*) transferred to the Philippines Navy for counter-terrorism duties.

UPDATED

20 Mk V CLASS (HSIC)

Displacement, tons: 54 full load
Dimensions, feet (metres): 81.2 × 17.5 × 4.3 *(24.7 × 5.3 × 1.3)*
Main machinery: 2 MTU 12V 396 TE94 diesels; 4,506 hp *(3.36 MW)* sustained; 2 Kamewa water-jets
Speed, knots: 45. **Range, miles:** 515 at 35 kt
Complement: 5 plus 4 spare
Military lift: 16 fully equipped troops
Guns: 5 Mk 46 Mod 4 mountings for twin 12.7 mm or 7.6 mm MGs, 1 Mk 19 40 mm grenade launcher. 3 Bushmaster 25 mm Mk 38.
Countermeasures: ESM: Sensytech Bobcat; radar intercept.
Radars: Navigation: Furuno; I-band.
IFF: APX-100(V).

Comment: This was the winning design of a competition held in 1994 to find a high-speed craft to insert and withdraw Navy SEAL teams and other special operations forces personnel. Fourteen delivered by mid-1998 and six more by mid-1999. All built at the Halter Marine Equitable Shipyard in New Orleans. The craft has an aluminium hull and is transportable by C-5 aircraft. Stinger missiles may be carried and gun armaments can be varied. A variant with three engines is in service with the Mexican Navy. ***UPDATED***

MK V *4/2003*, A Sharma* / 0572743

32 RIVERINE ASSAULT CRAFT (LCPF)

Displacement, tons: 7.5 full load
Dimensions, feet (metres): 35.1 × 9.2 × 2.3 *(10.7 × 2.8 × 0.7)*
Main machinery: 2 Cummins diesels; 600 hp *(447 kW)*; 2 waterjets
Speed, knots: 43
Complement: 4-5 plus 10-15 marines
Guns: 1—12.7 mm M2HB MG. 1—40 mm Mk 19 grenade launcher.

Comment: The first 14 were constructed by SeaArk Marine and delivered by 1992. A further 18 were constructed by Swiftships and delivered by 1994. Owned and operated by USMC and based at Camp Lejeune, NC. Can be transported in a C-130. ***UPDATED***

RAC *2000, USMC* / 0106808

70 RIBs (RIGID INFLATABLE BOATS) (PBF)

Displacement, tons: 9 full load
Dimensions, feet (metres): 36.1 × 10.5 × 3 *(11 × 3.2 × 0.9)*
Main machinery: 2 Caterpillar 3126 diesels; 940 hp *(700 kW)*; 2 Kamewa FF 280 water-jets
Speed, knots: 33. **Range, miles:** 200 at 33 kt
Complement: 3 plus 8 SEALs
Guns: 1—12.7 mm MG, 1—7.62 mm MG or Mk 19 Mod 3 grenade launcher.

Comment: Capable of carrying eight SEALS at 32 kt. Details given are for the latest type being built by USMI, New Orleans. Entered service between 1998 and 2002. ***VERIFIED***

RIB *1/1998, US Navy* / 0016492

RIB *1/2002, M Declerck* / 0529972

122 LIGHT PATROL BOATS (PBF)

Displacement, tons: 1.2 full load
Dimensions, feet (metres): 22.3 × 8.6 × 1.5 *(6.8 × 2.6 × 0.5)*
Main machinery: 2 OMC outboards; 300 hp *(224 kW)*
Speed, knots: 35
Complement: 3
Guns: 3—12.7 mm MGs. 1—7.62 mm MG.
Radars: Surface search: Furuno 1731; I-band.

Comment: Built by Boston Whaler in 1988 for US Special Operations Command. Air transportable. Glass fibre hulls. Replacement began in 2001. ***UPDATED***

PBL-CD *1996, Boston Whaler* / 0084150

70 HARBOUR SECURITY CRAFT (YP)

Displacement, tons: 3.9 full load
Dimensions, feet (metres): 24 × 8 × 3.3 *(7.3 × 2.4 × 1)*
Main machinery: 1 Volvo Penta AQAD41A diesel; 330 hp(m) *(243 kW)* sustained; 1 Type 290 outdrive
Speed, knots: 22
Complement: 3
Guns: 1—7.62 mm MG.
Radars: Surface search: Furuno; I-band.

Comment: Built by Peterson, Wisconsin and delivered between 29 February 1988 and 12 May 1989 in batches of 50, 25 and 10. Used for protecting naval installations, ports, harbours and anchorages. Some have been deleted. In addition there are large numbers of other small craft used in similar roles. ***VERIFIED***

HARBOUR SECURITY CRAFT *1/2002, A Sharma* / 0131284

AUXILIARIES

Notes: (1) The current plan is to be able to provide support in two regional crises simultaneously. This plan is based on the availability of some storage depots on foreign territory, and the use of Military Sealift Ships to carry fuels, munitions and the stores from the USA or overseas sources for transfer to UNREP (Underway Replenishment) ships in overseas areas. Some 16 to 18 UNREP ships are normally forward deployed in the Mediterranean, Western Pacific and Indian Ocean areas in support of the 5th, 6th and 7th Fleets, respectively.
Fleet support ships provide primarily maintenance and related towing and salvage services at advanced bases and at ports in the USA. These ships normally do not provide fuel, munitions, or other supplies except when ships are alongside for maintenance. Most fleet support ships operate from bases in the USA.
(2) A few underway replenishment ships and fleet support ships are Navy manned and armed, but most are operated by the Military Sealift Command (MSC) with civilian crews and are unarmed. The latter ships have T-prefix before their designations and are listed in the MSC section.

4 SAFEGUARD CLASS: SALVAGE SHIPS (ARS)

Name	*No*	*Builders*	*Commissioned*	*F/S*
SAFEGUARD	ARS 50	Peterson Builders	16 Aug 1985	PA
GRASP	ARS 51	Peterson Builders	14 Dec 1985	AA
SALVOR	ARS 52	Peterson Builders	14 June 1986	PA
GRAPPLE	ARS 53	Peterson Builders	15 Nov 1986	AA

Displacement, tons: 3,200 full load
Dimensions, feet (metres): 255 × 51 × 17 *(77.7 × 15.5 × 5.2)*
Main machinery: 4 Caterpillar diesels; 4,200 hp *(3.13 MW)*; 2 shafts; cp Kort nozzle props; bow thruster; 500 hp *(373 kW)*
Speed, knots: 14. **Range, miles:** 8,000 at 12 kt
Complement: 104 (6 officers)
Guns: 2—25 mm Mk 38.
Radars: Navigation: SPS-64(V)9; I-band.

Comment: Prototype approved in FY81, two in FY82 and one in FY83. The procurement of the fifth ARS was dropped on instructions from Congress. The design follows conventional commercial and Navy criteria. Can support surface-supplied diving operations to a depth of 58 m. Equipped with recompression chamber. Bollard pull, 65.5 tons. Using beach extraction equipment the pull increases to 360 tons. 150 ton deadlift. ARS 52 took part in the salvage and recovery of *Ehime Maru* which sank off Hawaii after being struck by USS *Greeneville*. ***UPDATED***

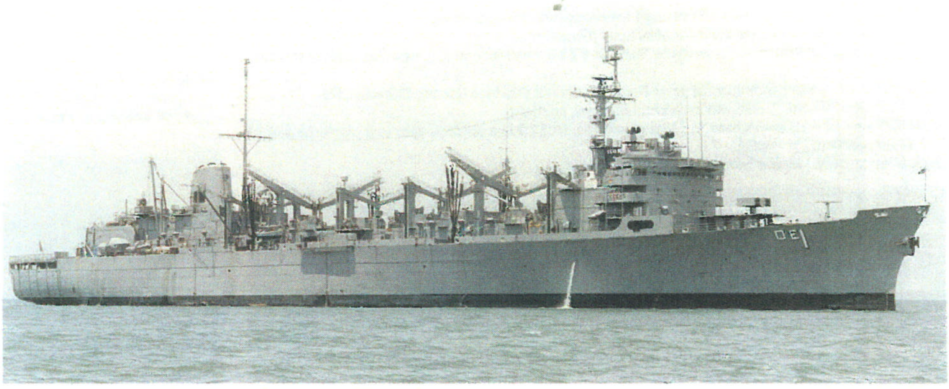
GRAPPLE *5/2003*, A Sharma* / 0572742

4 SACRAMENTO CLASS: FAST COMBAT SUPPORT SHIPS (AOEHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*
SACRAMENTO	AOE 1	Puget Sound SY	30 June 1961	14 Sep 1963	14 Mar 1964	PA
CAMDEN	AOE 2	New York Shipbuilding	17 Feb 1964	29 May 1965	1 Apr 1967	PA
SEATTLE	AOE 3	Puget Sound SY	1 Oct 1965	2 Mar 1968	5 Apr 1969	AA
DETROIT	AOE 4	Puget Sound SY	29 Nov 1966	21 June 1969	28 Mar 1970	AA

Displacement, tons: 19,200 light; 51,400-53,600 full load
Dimensions, feet (metres): 793 × 107 × 39.3 *(241.7 × 32.6 × 12)*
Main machinery: 4 Combustion Engineering boilers; 600 psi *(42.2 kg/cm²)*; 900°F *(480°C)*; 2 GE turbines; 100,000 hp *(76.4 MW)*; 2 shafts
Speed, knots: 30. **Range, miles:** 6,000 at 25 kt; 10,000 at 17 kt
Complement: 601 (24 officers)
Cargo capacity: 177,000 barrels of fuel; 2,150 tons munitions; 500 tons dry stores; 250 tons refrigerated stores

Missiles: SAM: Raytheon NATO Sea Sparrow Mk 29 octuple launcher.
Guns: 2 General Electric/General Dynamics 20 mm Vulcan Phalanx Mk 15. 4—12.7 mm MGs.
Countermeasures: Decoys: Loral Hycor SRBOC 6-barrelled Mk 36; IR flares and chaff to 4 km *(2.2 n miles)*. SLQ-25 Nixie towed torpedo decoy.
ESM/ECM: SLQ-32(V)3; combined intercept and jammer.
Weapons control: Mk 91 Mod 1 MFCS.
Radars: Air search: Lockheed SPS-40E, Westinghouse SPS-58A (AOE 1 and 2), SPS-58A only (AOE 4); E/F- and D-band (SPS-58). Hughes Mk 23 TAS (AOE 3); D-band.
Surface search: Raytheon SPS-10F; G-band.
Navigation: Raytheon SPS-64(V)9; I-band.
Fire control: 2 Raytheon Mk 95; I/J-band (for SAM).
Tacan: URN 25.


SACRAMENTO *8/1999, John Mortimer /* 0084154

Helicopters: 2 UH-46E Sea Knight normally assigned.

Comment: Designed to provide rapid replenishment at sea of petroleum, munitions, provisions, and fleet freight. Fitted with large hangar for vertical replenishment operations (VERTREP). AOE 1, AOE 3 and AOE 4 are to decommission in 2005 and AOE 2 in 2006.

UPDATED

2 EMORY S LAND CLASS: SUBMARINE TENDERS (ASH)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*
EMORY S LAND	AS 39	Lockheed SB & Construction Co, Seattle	2 Mar 1976	4 May 1977	7 July 1979	AA
FRANK CABLE	AS 40	Lockheed SB & Construction Co, Seattle	2 Mar 1976	14 Jan 1978	5 Feb 1980	PA

Displacement, tons: 13,840 standard; 23,493 full load
Dimensions, feet (metres): 643.8 × 85 × 28.5 *(196.2 × 25.9 × 8.7)*
Main machinery: 2 Combustion Engineering boilers; 620 psi *(43.6 kg/cm²)*; 860°F *(462°C)*; 1 De Laval turbine; 20,000 hp *(14.9 MW)*; 1 shaft
Speed, knots: 20. **Range, miles:** 10,000 at 12 kt
Complement: 535 (52 officers) plus Flag Staff 69 (25 officers)
Guns: 4 Oerlikon 20 mm Mk 67.
Radars: Navigation: ISC Cardion SPS-55; I/J-band.
Helicopters: Platform only.

Comment: The first US submarine tenders designed specifically for servicing nuclear-propelled attack submarines. Each ship can simultaneously provide services to four submarines moored alongside. Carry one 30 ton crane and two 5 ton mobile cranes. Have a 23 bed sick bay. *Frank Cable* is based at Guam and *Emory S Land* in the Mediterranean.

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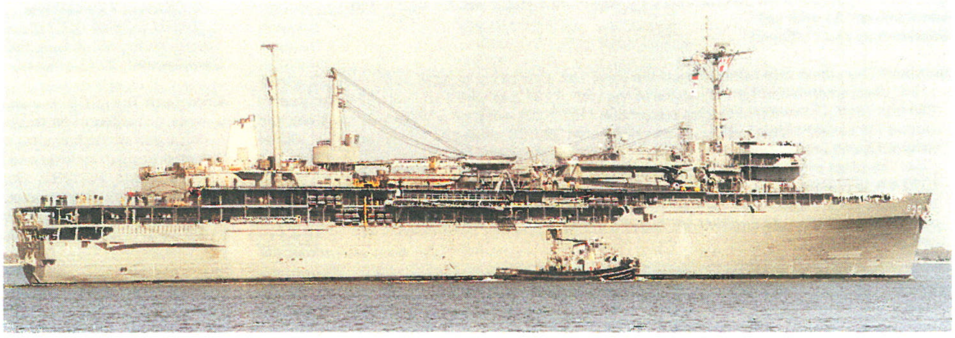

EMORY S LAND *4/1999, Jürg Kürsener /* 0084155

FLOATING DRY DOCKS

Notes: The US Navy operates a limited number of floating dry docks to supplement dry dock facilities at major naval activities. The larger floating dry docks are made sectional to facilitate movement and to render them self-docking. Some of the ARD-type docks have the forward end of their docking well closed by a structure resembling the bow of a ship to facilitate towing. Berthing facilities, repair shops and machinery are housed in sides of larger docks. None is self-propelled.

1 MEDIUM AUXILIARY FLOATING DRY DOCK (AFDM)

Name/No	*Commissioned*	*Capacity (tons)*	*Construction*	*Status*
AFDM 7	1945	13,500	Steel (3)	Commercial lease, Jacksonville, FL

Sales: AFDM 2 at Marad Reserve Fleet, Beaumont, Texas. To be donated or transferred to Federal or State government or non-profit making organisation. AFDM 3 sold to Bender Shipbuilding and Repair, Mobile, AL in 2002. AFDM 10 deactivated in May 2004.

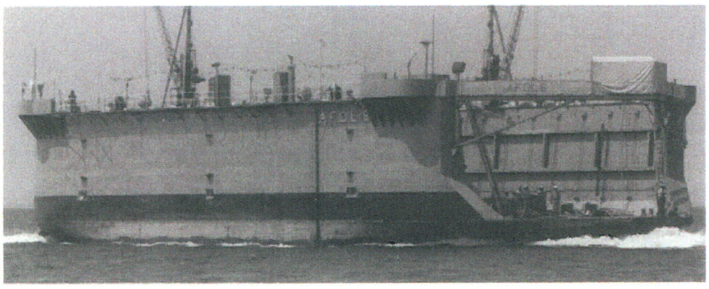
UPDATED

SMALL AUXILIARY FLOATING DRY DOCKS (AFDL)

Name/No	*Completed*	*Capacity (tons)*	*Construction*	*Status*
DYNAMIC (AFDL 6)	1944	950	Steel	Active, Norfolk, VA
ADEPT (AFDL 23)	1944	1,770	Steel	Commercial lease, Ingleside, TX
RELIANCE (AFDL 47)	1946	7,000	Steel	Commercial lease, Deytens, SC

Sales: AFDL 1 to Dominican Republic; 4, Brazil; 5, Taiwan; 11, Kampuchea; 20, Philippines; 22, Vietnam; 24, Philippines; 26, Paraguay; 28, Mexico; 33, Peru; 34 and 36, Taiwan; 39, Brazil; 40 and 44, Philippines.

VERIFIED


DYNAMIC *6/1986, Giorgio Arra*

AUXILIARY REPAIR DRY DOCKS and MEDIUM AUXILIARY REPAIR DRY DOCKS (ARDM)

Name/No	*Commissioned*	*Capacity (tons)*	*Construction*	*Status*
SHIPPINGPORT (ARDM 4)	1979	7,800	Steel	Active, New London, CT
ARCO (ARDM 5)	1986	7,800	Steel	Active, San Diego, CA

Sales: ARD 2 to Mexico; 5, Chile; 6, Pakistan; 8, Peru; 9, Taiwan; 11, Mexico; 12, Turkey; 13, Venezuela; 14, Brazil; 15, Mexico; 17, Ecuador; 22 *(Windsor)*, Taiwan; 23, Argentina; 24, Ecuador; 25, Chile; 28, Colombia; 29, Iran; 32, Chile. ARDM 1 (ex-ARD 19) awaiting disposal decision.

VERIFIED

ARCO *8/2002, Hachiro Nakai /* 0530009

YARD FLOATING DRY DOCKS (YFD)

Name/No	*Completed*	*Capacity (tons)*	*Construction*	*Status*
YFD 54	1943	5,000	Wood	Commercial lease, Todd Pacific SY, Seattle, WA
YFD 69	1945	15,000	Steel (3)	Commercial lease, Port of Portland, OR
YFD 70	1945	15,000	Steel (3)	Commercial lease, Todd Pacific SY, Seattle, WA
YFD 83 (ex-AFDL 31)	1943	1,000	Steel	Loan, US Coast Guard

VERIFIED

UNCLASSIFIED MISCELLANEOUS (IX)

Notes: (1) In addition to the vessels listed below, one of the ex-'Forrest Sherman' class, *Decatur*, completed conversion on 21 October 1994 as a Self-Defence testing-ship, including high-energy laser trials. Tests with HFSWR (high-frequency surface wave radar) started mid-1997.
(2) *Mercer* APL 39 (ex-IX 502) and *Nueces* APL 40 (ex-IX 503) are barrack ships of mid-1940s vintage.
(3) IX 516 is a decommissioned SSBN used for propulsion plant training.
(4) IX 517 is a submarine sea trials escort vessel *(Gosport)*.
(5) IX 519 is used as a boat platform for *La Salle*. IX 523 is used for security training, both at Norfolk, VA.
(6) IX 310 is an accommodation barge at Naval Undersea Warfare Center, Dresden, NJ.
(7) IX 521, IX 522 and IX 525 are individual drydock sections.
(8) IX 527 and IX 528 are submarine test platforms, IX 529 is a surface ship test platform and IX 531 a test platform for HM&E.
(9) IX 530 (ex-YFND 5) is a berthing barge.

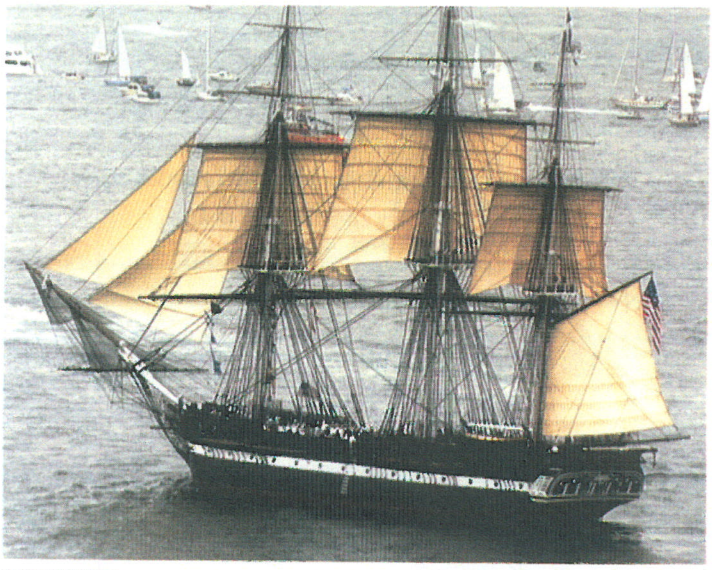
APL 40 *7/2001, Mitsuhiro Kadota* / 0131279

1 CONSTITUTION CLASS (AXS)

Name	*Builders*	*Launched*	*Under Way*	*F/S*
CONSTITUTION	Hartt's Shipyard, Boston	21 Oct 1797	22 July 1798	AA

Displacement, tons: 2,200
Dimensions, feet (metres): 204 oa; 175 wl × 43.5 × 22.5 *(62.2; 53.3 × 13.2 × 6.8)*
Speed, knots: 13 under sail
Complement: 75 (4 officers)

Comment: The oldest ship remaining on the Navy List. One of six frigates authorised 27 March 1794. Best remembered for her service in the war of 1812, in which she earned the nickname 'Old Ironsides'. Following extensive restoration (1927-30), went on a three year goodwill tour around the United States (1931-34), travelling over 22,000 miles and receiving over 4 million visitors. Open to the public in her homeport of Boston, the ship receives over 400,000 visitors a year. The most recent overhaul was conducted at the Charlestown Navy Yard, Boston from 1992-96. Under fighting sails (jibs, topsails and spanker) *Constitution* sailed for the first time in 116 years on 21 July 1997 as part of her bicentennial celebration. Armament is 32 × 24 pounder guns, 20 × 32 pounder carronades and 2—24 pounder bow-chasers. Sail area 42,710 sq ft *(13,018 m²)*. ***VERIFIED***



CONSTITUTION *7/1997, Todd Stevens, US Navy* / 0016501

1 LCU 1600 CLASS (LCU)

Name	*No*	*Builders*	*Commissioned*	*F/S*
ORCA	IX 508 (ex-LCU 1618)	Gunderson Bros, Portland	1959	PSA

Comment: For general characteristics, see under 'LCU 1600' class in the *Amphibious Warfare* section. Conversion and overhaul in 1977 included installation of a bow thruster, a bridge and pilot-house, and a hangar type enclosed storage area in the well-deck, for the support of the Center's recovery vehicles CURV I and CURV II and installation of a crane. Reclassified as IX on 1 December 1979. Leased to Naval Oceanographic Office, Mississippi. ***VERIFIED***

ORCA *8/1999, van Ginderen Collection* / 0084158

1 TRAINING SHIP (AXT)

Name	*Builders*	*Commissioned*
IX 514 (ex-*YFU 79*)	Pacific Coast Eng, Alameda	1968

Displacement, tons: 380 full load
Dimensions, feet (metres): 125 × 36 × 7.5 *(38.1 × 10.9 × 2.3)*
Main machinery: 4 GM 6-71 diesels; 696 hp *(519 kW)* sustained; 2 shafts
Speed, knots: 8
Radars: Navigation: Racal Decca; I-band.

Comment: Harbour utility craft converted in 1986 with a flight deck covering two thirds of the vessel and a new bridge and flight control position at the forward end. Used for basic helicopter flight training at Pensacola, Florida. Similar craft *IX 501* deleted. ***VERIFIED***

IX 514 *12/1994, van Ginderen Collection*

1 RESEARCH SHIP (YAGK)

Name	*Builders*	*Commissioned*
IX 515 (SES-200) (ex-USCG *Dorado*)	Bell Halter, New Orleans	Feb 1979

Displacement, tons: 205 full load
Dimensions, feet (metres): 159.1 × 42.6 × 6; 3 on cushion *(48.5 × 13 × 1.8; 0.9)*
Main machinery: 2 MTU 16V 396 TB94 diesels (propulsion); 5,800 hp(m) *(4.26 MW)* sustained; 2 Kamewa 71 water-jets
2 MTU 6V 396 TB83 diesels (lift); 1,560 hp(m) *(1.15 MW)* sustained
Speed, knots: 45. **Range, miles:** 2,950 at 30 kt
Complement: 22 (2 officers)

Comment: The *IX 515* is a waterborne, air-supported craft with catamaran-style rigid sidewalls. It uses a cushion of air trapped between the sidewalls and flexible bow and stern seals to lift a large part of the hull clear of the water to reduce drag. A portion of the sidewall remains in the water to aid in stability and manoeuvrability. Modifications to the advanced ride control system were made in 1989. Serves as a high-performance test platform for weapon system development programmes, and as operational demonstrator for an advanced naval vehicle hullform. Trials of ALISS (Advanced Lightweight Influence Sweep System) in 1996-97. Based at Office of Naval Research, Arlington, VA. ***UPDATED***

IX 515 *9/1998, Findler & Winter* / 0053382

MINOR AUXILIARIES

Notes: As of January 2004, the US Navy had about 600 active and inactive service craft, primarily small craft, on the US Naval Vessel Register. A majority of them provide services to the fleet in various harbours and ports. Others are ocean-going ships that provide services to the fleet in the research area. Most of the service craft are rated as 'active, in service', but a few are rated as 'in commission'. Some are accommodation ships.

1 HARBOUR UTILITY CRAFT LCU TYPE (YFU)

YFU 81

Comment: Former utility landing craft employed primarily as harbour and coastal cargo craft. Based at Roosevelt Roads. ***UPDATED***

YFU *5/1999, M Declerck* / 0084160

2 DIVING TENDERS (YDT)

NEPTUNE YDT 17 **POSEIDON** YDT 18

Displacement, tons: 275 full load
Dimensions, feet (metres): 132 × 27 × 6.0 *(40.2 × 8.2 × 1.8)*
Main machinery: 2 Caterpillar diesels; 2,600 hp *(1.91 MW)*; 2 Hamilton waterjets
Speed, knots: 20
Complement: 8 plus 7 divers

Comment: Tenders used to support shallow-water diving operations and are based at Panama City, FL. Ordered from Swiftships in July 1997 and delivered in April 1999.

UPDATED

NEPTUNE *8/1999, US Navy* / 0084159

23 PATROL CRAFT (YP)

YP 663 **YP 665** **YP 680-692** **YP 694-698** **YP 700-702**

Displacement, tons: 167 full load
Dimensions, feet (metres): 108 × 24 × 5.9 *(32.9 × 7.3 × 1.8)*
Main machinery: 2 Detroit 12V-71 diesels; 680 hp *(507 kW)* sustained; 2 shafts
Speed, knots: 13.3. **Range, miles:** 1,500 at 12 kt
Complement: 6 (2 officers) plus 24 midshipmen
Radars: Navigation: I-band.

Comment: Built in the 1980s by Peterson Builders and Marinette Marine, both in Wisconsin. Nineteen are based at the Naval Academy, Annapolis; two at the Naval air station, Pensacola and two at Naval Underwater Warfare Centre, Keyport. Some earlier versions converted for mine countermeasures operations and assigned to the former COOP project which was discontinued in 1995.

UPDATED

YP 683 *7/2000, Hachiro Nakai* / 0106812

2 TORPEDO TRIALS CRAFT (YTT)

BATTLE POINT YTT 10 **DISCOVERY BAY** YTT 11

Displacement, tons: 1,168 full load
Dimensions, feet (metres): 186.5 × 40 × 10.5 *(56.9 × 12.2 × 3.2)*
Main machinery: 1 Cummins KTA50-M diesel; 1,250 hp *(932 kW)* sustained; 1 shaft; 1 bow thruster; 400 hp *(298 kW)*; 2 stern thrusters; 600 hp *(448 kW)*
Speed, knots: 11. **Range, miles:** 1,000 at 10 kt
Complement: 31 plus 9 spare berths

Comment: Built by McDermott Shipyard, Morgan City, and delivered in 1991-92. Fitted with two 21 in Mk 59 and three (one triple) 12.75 in Mk 32 Mod 5 torpedo tubes. YTT 10 is used for torpedo trials and development at Keyport, Washington. A battery is fitted for limited duration operations with the diesel shutdown. YTT 11 assigned to National Oceanographic as a ROV carrier for research into US coastal waters until 2004. Underwater recovery vessels SORD 4, TROV and CURV. Both based at Naval Underwater Warfare Centre, Keyport, WA.

UPDATED

YTT *9/1999, van Ginderen Collection* / 0084162

22 TORPEDO RETRIEVERS (YPT)

Comment: Five different types spread around the Fleet bases and at AUTEC. There are 3 × 65 ft, 5 × 72 ft, 5 × 85 ft, 3 × 100 ft and 8 × 120 ft.

VERIFIED

TR 6 *7/2000, Sattler/Steele* / 0106813

TUGS

31 LARGE HARBOUR TUGS (YTB)

MUSKEGON	YTB 763	**WENATCHEE**	YTB 808
OKMULGEE	YTB 765	**ACCONAC**	YTB 812
CHESANING	YTB 769	**POUGHKEEPSIE**	YTB 813
KEOKUK	YTB 771	**WAXAHACHIE**	YTB 814
MANHATTAN	YTB 779	**NEODESHA**	YTB 815
NIANTIC	YTB 781	**MECOSTA**	YTB 818
MANISTEE	YTB 782	**WANAMASSA**	YTB 820
REDWING	YTB 783	**CANONCHET**	YTB 823
KITTANNING	YTB 787	**SANTAQUIN**	YTB 824
TOMAHAWK	YTB 789	**CATAHECASSA**	YTB 828
MARINETTE	YTB 791	**DEKANAWIDA**	YTB 831
SACO	YTB 796	**PETALESHARO**	YTB 832
TAMAQUA	YTB 797	**NEWGAGON**	YTB 834
OPELIKA	YTB 798	**SKENANDOA**	YTB 835
TUSKEGEE	YTB 806	**POKAGON**	YTB 836
MASSAPEQUA	YTB 807		

Displacement, tons: 356 full load
Dimensions, feet (metres): 109 × 30 × 13.8 *(33.2 × 9.1 × 4.2)*
Main machinery: 1 Fairbanks-Morse 38D8-1/8 diesel; 2,000 hp *(1.49 MW)* sustained; 1 shaft
Speed, knots: 12. **Range, miles:** 2,000 at 12 kt
Complement: 10-12
Radars: Navigation: Marconi LN66; I-band.

Comment: Built between 1959 and 1975. Two transferred to Saudi Arabia in 1975. Being withdrawn from service and tugs are being provided by MSC charter.

VERIFIED

MARINETTE *3/1999, M Declerck* / 0085301

RESEARCH SHIPS

Notes: There are many naval associated research vessels which are civilian manned and not carried on the US Naval Vessel Register. In addition civilian ships are leased for short periods to support a particular research project or trial. Some of those employed include *RSB-1* (missile booster recovery), *Acoustic Pioneer* and *Acoustic Explorer* (acoustic research).

ACOUSTIC PIONEER *3/1996, W H Clements* / 0085302

1 HIGH SPEED LOGISTIC SUPPORT VESSEL (HSVH)

JOINT VENTURE HSV-X1

Displacement, tons: 1,872
Dimensions, feet (metres): 315.0 × 88.5 × 12.1 *(96.0 × 27.0 × 3.7)*
Main machinery: 4 CAT 3618 diesels; 38,620 hp (*28.8 MW*); 4 LIPS 150D waterjets
Speed, knots: 48 (light); 38 (full load). **Range, miles:** 2,400 at 35 kt
Military lift: 815 tonnes cargo and 350 personnel

Comment: Built as *Incat 50* of aluminium construction and chartered by US Army Tank Automotive and Armament Command (TACOM) from Bollinger/Incat from October 2001 for trials. Current contract expires 12 December 2004. Modifications to the commercial design include deck strengthening, a 472 m² helicopter deck, suitable for SH-60 and CH-46, and a two-part hydraulically operated vehicle ramp to facilitate rapid loading/unloading from stern or alongside. Military communications have also been fitted. Manned by a joint Army/Navy crew, the ship is being used by both services in a series of exercises and trials. Typical roles being examined include those exercised in Millennium Challenge 2002: Mine Warfare Command and Control, Mine Countermeasures, Naval Special Warfare, Ship to Objective Manoeuvre and intra-theatre lift of an interim Brigade Combat Team. Further trials in 2003 included exploration of Littoral Combat Ship concepts. Based at Norfolk, Virginia.

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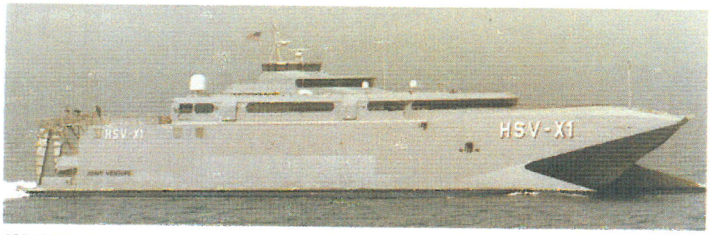

JOINT VENTURE *3/2003*, A Sharma* / 0572741

1 HIGH SPEED THEATRE SUPPORT VESSEL (HSV)

SPEARHEAD TSV-1X

Displacement, tons: 1,800
Dimensions, feet (metres): 321.6 × 85.3 × 12.1 *(98.0 × 26.0 × 3.7)*
Main machinery: 4 MAN B&W 20 RK 270 diesels; 37,950 hp *(28.3 MW)*; 4 LIPS 150D waterjets
Speed, knots: 48 (light); 38 (full load). **Range, miles:** 2,400 at 35 kt
Military lift: 750 tonnes cargo and 325 personnel

Comment: Built as *Incat 60* (Incat Evolution 10B) of aluminium construction and leased by US Army Tank Automotive and Armament Command (TACOM) from Bollinger/Incat of Lockport, Louisiana from November 2002. Current contract expires on 18 January 2005. The ship is to be utilised for the movement of the Army's prepositioned stocks and for sustainment deliveries. Details are indicative and based on those of *Joint Venture*. Not fitted with helicopter facilities.

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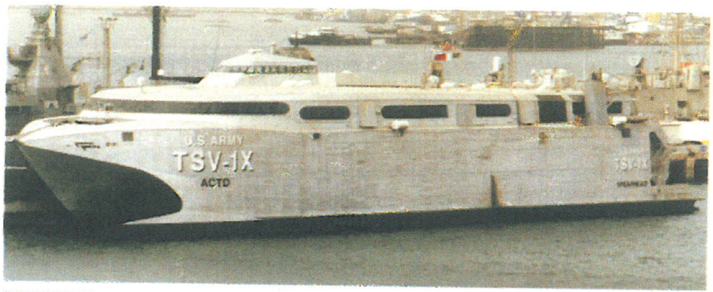


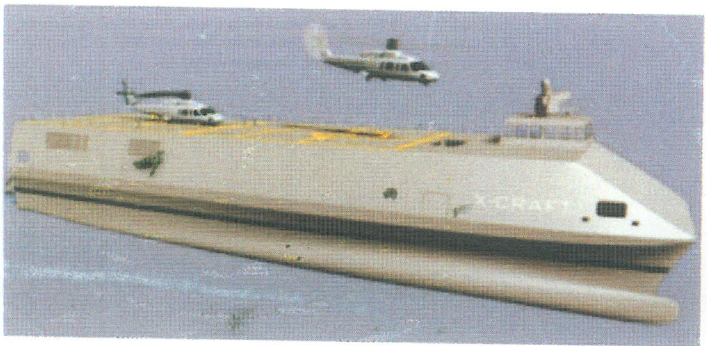
SPEARHEAD *4/2003*, A Sharma* / 0572740

0 + 1 EXPERIMENTAL CATAMARAN (AGE)

Displacement, tons: 1,150 full load
Dimensions, feet (metres): 260.0 × 72.2 × 11.8 *(79.2 × 22.0 × 3.6)*
Main machinery: CODOG; 2 GE LM 2500 gas turbines; 2 MTU 16V595 diesels; four Rolls-Royce Kamewa 125 SII waterjets
Speed, knots: 50
Complement: 26
Radars: Navigation: to be announced.
Helicopters: Platform for 2 SH-60R.

Comment: Titan Corporation of San Diego, California and Nigel Gee and Associates Ltd of Southampton, UK (later acquired by BMT) selected in September 2002 by the Office of Naval Research (ONR) to design an experimental vessel known as X-Craft. Contract for development and build awarded to Titan on 25 February 2003. Laid down 5 June 2003 at Nichols Brothers Boat Builders, Whidbey Island, WA. For completion by December 2004. The ship is to be used by ONR for hydrodynamic experimentation and operational concept development for high speed craft. Catamaran design of aluminium construction. A flush upper deck has a landing area for two helicopters. Access is via a large lift from the flight deck or over folding ramps at the stern. Propulsion is by waterjets driven by gas turbines for high speed operation and diesel engines for lower speed loitering and transit.

NEW ENTRY



X-CRAFT *6/2003*, US Navy* / 0572810

1 RESEARCH SHIP (AGE)

SLICE

Displacement, tons: 180 full load
Dimensions, feet (metres): 105 × 55.5 × 14 *(32 × 16.9 × 4.3)*
Main machinery: 2 MTU 16V 396 TB94 diesels; 13,700 hp(m) *(10.07 MW)*; 2 shafts; LIPS cp props
Speed, knots: 30
Complement: 12

Comment: Technology demonstrator built by Pacific Marine and owned by Lockheed Martin. Participated as a littoral warfare combatant in Fleet Battle Experiment Juliet (FBE-J) (part of Millennium Challenge 2002) accompanied by *Joint Venture* (HSV-X1). Modular capability packages, carried to simulate Littoral Combat Ship (LCS), included Mine Countermeasures (MCM), Antisubmarine Warfare (ASW), Force Protection and Time Critical Targeting. Weapons tested during FBE-J included the Lockheed Martin/Oerlikon Contraves 35 mm Millennium Gun and the NetFires System and launcher.

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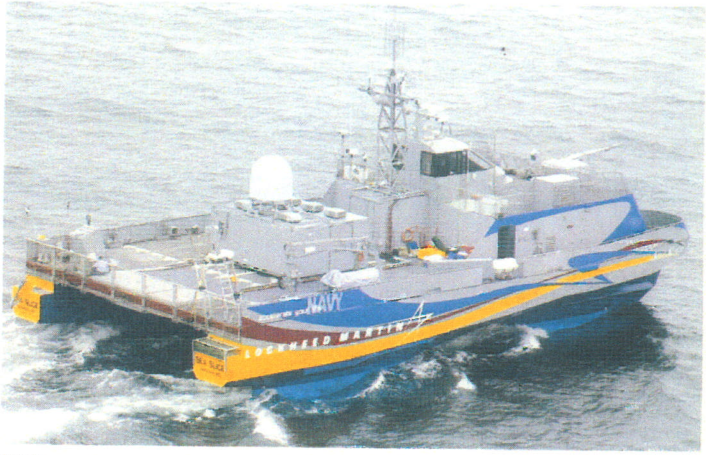

SLICE *10/2002*, US Navy* / 0572739

1 RESEARCH SHIP (AGE)

SEA SHADOW

Displacement, tons: 560 full load
Dimensions, feet (metres): 160 × 70 × 14 *(48.8 × 21.3 × 4.3)*
Main machinery: Diesel-electric; 2 Detroit 12V-149TI diesels; 2 shafts
Speed, knots: 13. **Range, miles:** 2,250 at 9 kt
Complement: 12

Comment: Built by Lockheed in 1983-84. Testing started in 1985 but the ship was then laid up until April 1993 when testing resumed off Santa Cruz island, southern California. This is a stealth ship prototype of SWATH design with sides angled at 45° to minimise the radar cross-section. Operated by Lockheed for testing all aspects of stealth technology and reactivated for a six year programme at San Diego in early 1999.

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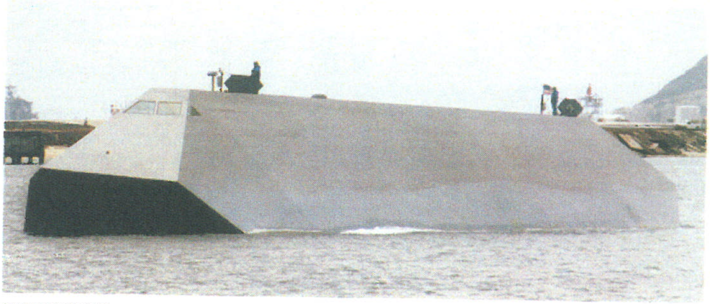

SEA SHADOW *9/1999, van Ginderen Collection* / 0084164

3 ASHEVILLE CLASS (YFRT)

ATHENA (ex-*Chehalis*) **ATHENA II** (ex-*Grand Rapids*) **LAUREN** (ex-*Douglas*)

Displacement, tons: 245 full load
Dimensions, feet (metres): 164.5 × 23.8 × 9.5 *(50.1 × 7.3 × 2.9)*
Main machinery: CODOG; 1 GE LM 1500 gas-turbine; 12,500 hp *(9.3 MW)*; 2 Cummins VT12-875 diesels; 1,450 hp *(1.07 MW)*; 2 shafts; cp props
Speed, knots: 16. **Range, miles:** 1,700 at 16 kt
Complement: 22

Comment: All built 1969-71. Work for the Carderock Division, Naval Surface Warfare Center, at Panama City, Florida. Disarmed except *Lauren* which has maintained its military appearance.

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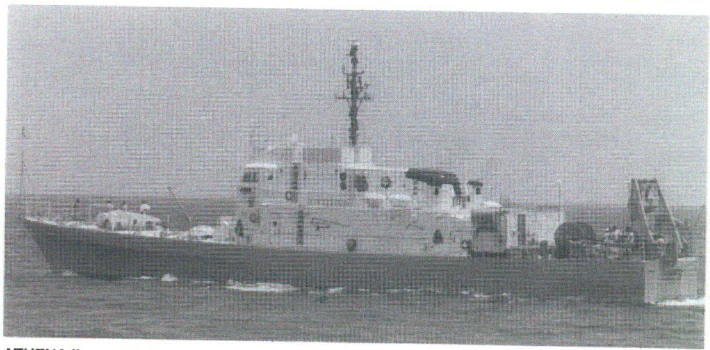

ATHENA II *6/1993, Giorgio Arra*

RESEARCH OCEANOGRAPHIC SHIPS

2 MELVILLE CLASS (AGOR)

Name	*No*	*Builders*	*Commissioned*	*F/S*
MELVILLE	AGOR 14	Defoe SB Co, Bay City, MI	27 Aug 1969	Loan
KNORR	AGOR 15	Defoe SB Co, Bay City, MI	14 Jan 1970	Loan

Displacement, tons: 2,944 full load
Dimensions, feet (metres): 278.9 × 46.3 × 16.5 *(85 × 14.1 × 5.0)*
Main machinery: Diesel-electric; 4 Caterpillar 3516 diesel generators; 3 motors; 3,000 hp *(2.24 MW)*; 3 shafts (2 aft, 1 fwd)
Speed, knots: 14. **Range, miles:** 12,000 at 12 kt
Complement: 23 (9 officers) plus 38 scientists

Comment: *Melville* operated by Scripps Institution of Oceanography and *Knorr* by Woods Hole Oceanography Institution for the Office of Naval Research, under technical control of the Oceanographer of the Navy. Fitted with internal wells for lowering equipment, underwater lights and observation ports. Facilities for handling small research submersibles. Problems with the propulsion system have led to major modifications including electric drive (vice the original mechanical) and the insertion of a 34 ft central section increasing the displacement from the original 1,915 tons and allowing better accommodation and improved laboratory spaces. The forward propeller is retractable. These ships are highly manoeuvrable for precise position keeping.
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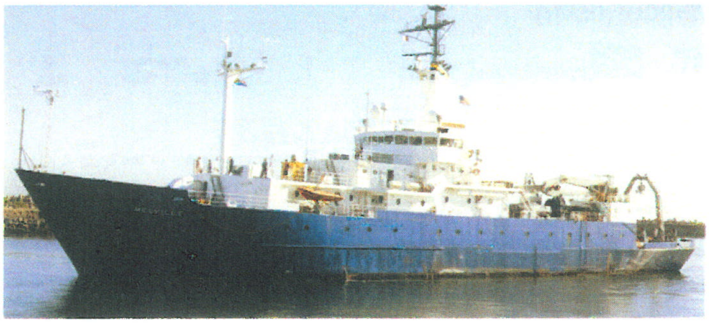

MELVILLE *3/2003*, Robert Pabst* / 0572738

4 THOMAS G THOMPSON CLASS (AGOR)

Name	*No*	*Builders*	*Launched*	*Commissioned*	*F/S*
THOMAS G THOMPSON (ex-*Ewing*)	AGOR-23	Halter Marine	27 July 1990	8 July 1991	Loan
ROGER REVELLE	AGOR-24	Halter Marine	20 Apr 1995	11 June 1996	Loan
ATLANTIS	AGOR-25	Halter Marine	1 Feb 1996	3 Mar 1997	Loan
RONALD H BROWN (ex-*Researcher*)	R 104 (ex-AGOR-26)	Halter Marine	30 May 1996	25 Apr 1997	NOAA

Displacement, tons: 3,251 full load
Dimensions, feet (metres): 274 oa; 246.8 wl × 52.5 × 19 *(83.5; 75.2 × 16 × 5.6)*
Main machinery: Diesel-electric; 6 Caterpillar diesel generators; 6.65 MW (3—1.5 MW and 3—715 kW); 2 motors; 6,000 hp *(4.48 MW)*; 2 shafts; bow thruster; 1,140 hp *(850 kW)*
Speed, knots: 15. **Range, miles:** 12,000 at 12 kt
Complement: 22 plus 37 scientists
Sonars: Atlas Elektronik Hydrographic.

Comment: *Thomas G Thompson* is the first of a class of oceanographic research vessels capable of operating worldwide in all seasons and suitable for use by navy laboratories, contractors and academic institutions. Dynamic positioning system enables station to be held within 300 ft of a point. 4,000 sq ft of laboratories. Loaned to the University of Washington and sponsored by the Chief of Naval Research, these ships are not part of the MSC. Ships in this series are able to meet changing oceanographic requirements for general, year-round, worldwide research. This includes launching, towing and recovering a variety of equipment. The ships are also involved in hydrographic data collection. *Roger Revelle* was authorised in FY92, ordered 11 January 1993 and is operated by the Scripps Institute of Oceanography. The third and fourth were ordered from Trinity Marine on 15 February 1994 and are 9 ft longer than the first pair and can carry *Alvin* DSV 2. *Atlantis* is operated by the Woods Hole Oceanographic Institution. *Ronald H Brown* by NOAA.
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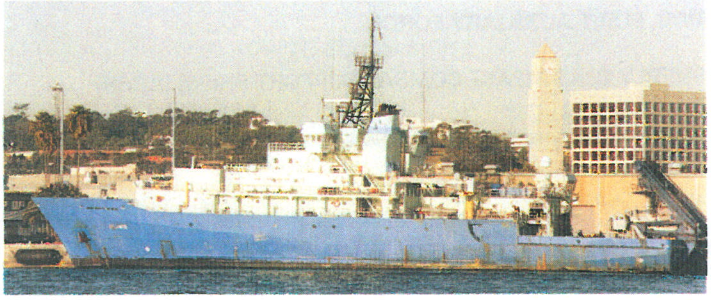

ATLANTIS *7/2000, van Ginderen Collection* / 0106815

1 AGOR-26 CLASS (AGOR)

Name	*No*	*Builders*	*Completed*
KILO MOANA	AGOR 26	Atlantic Marine, Jacksonville	Mar 2002

Displacement, tons: 2,500 full load
Dimensions, feet (metres): 186 × 88 × 25 *(56.7 × 26.8 × 7.6)*
Main machinery: Diesel-electric; 4 Caterpillar diesels; bow thruster
Speed, knots: 15. **Range, miles:** 10,000 at 11 kt
Complement: 48 (31 scientists)

Comment: Replacement for R/V *Moana Wave*. Designed to commercial standards and constructed by Atlantic Marine, Jacksonville. Launched on 17 November 2001. The ship is a small waterplane area, twin hull (SWATH) oceanographic vessel capable of performing general purpose oceanographic research in coastal and deep ocean areas. The University of Hawaii School of Ocean and Earth Science and Technology will operate the ship under a charter agreement with the Office of Naval Research (ONR). The survey suite consists of a Simrad EM 120 multibeam echosounder (12 kHz), a Simrad EM 1002 shallow water echo sounder (95 kHz), a Sontek current profiler and Simrad HPR-418 acoustic positioning system.
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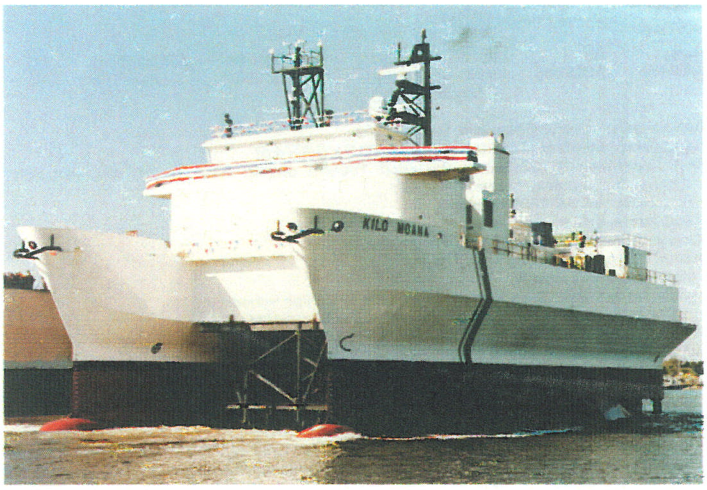

KILO MOANA *11/2001, Lockheed Martin* / 0096459

DEEP SUBMERGENCE VEHICLES

(Included in US Naval Vessel Register)

Notes: (1) Deep submergence vehicles and other craft and support ships are operated by Submarine Development Squadron Five at San Diego, California. The Squadron is a major operational command that includes advanced diving equipment; divers trained in 'saturation' techniques; DSRV-1; the submarine *Dolphin* (AGSS 555). DSRV-2 is inactive in lay-up condition. Two unmanned vessels CURV (Cable Controlled Underwater Remote Vehicle) Super Scorpios made test dives to 5,000 ft *(1,524 m)*.
(2) The Submarine Rescue, Diving and Recompression System (SRDRS) will replace the current DSRVs in 2006. A Remotely Operated Vehicle (ROV), launchable from a craft of opportunity in up to Sea State 4, will be based on the Australian 'Remora' system. Capable of rescuing up to 15 submariners at a time from depths up to 600 m, the ROV will be able to mate with decompression chambers. All components will fit into an ISO container to facilitate worldwide deployment.
(3) There are also four naval ROVs operated by the Supervisor of Salvage and Diving. These are air-transportable and can be operated from many warships and commercial vessels.

1 DEEP SUBMERGENCE RESCUE VEHICLE (DSRV)

Name	*No*	*Builders*	*In service*	*F/S*
MYSTIC	DSRV 1	Lockheed Missiles and Space Co,	7 Aug 1971	PSA

Displacement, tons: 30 surfaced; 38 dived
Dimensions, feet (metres): 49.2 × 8 *(15 × 2.4)*
Main machinery: Electric motors; silver/zinc batteries; 1 prop (movable control shroud); 4 ducted thrusters (2 fwd, 2 aft)
Speed, knots: 4. **Range, miles:** 24 at 3 kt
Complement: 4 (pilot, co-pilot, 2 rescue sphere operators) plus 24 rescued men
Sonars: Search and navigational sonar, obstacle avoidance sonar and closed-circuit television (supplemented by optical devices) are installed in the DSRV to determine the exact location of a disabled submarine within a given area and for pinpointing the submarine's escape hatches. Side-looking sonar can be fitted for search missions.

Comment: The DSRV is intended to provide a quick-reaction worldwide, all-weather capability for the rescue of survivors in a disabled submarine. Transportable by road, aircraft (in C-141 and C-5 jet cargo aircraft), specially designed surface ship, and specially modified mother ships (MOSUBs).

The carrying submarine will launch and recover the DSRV while submerged and, if necessary, while under ice. A total of six DSRVs were planned, but only two were funded. DSRV 2 is now inactive.

The outer hull is constructed of formed fibreglass. Within this outer hull are three interconnected spheres which form the main pressure capsule. Each sphere is 7.5 ft in diameter and is constructed of HY-140 steel. The forward sphere contains the vehicle's control equipment and is manned by the pilot and co-pilot, the centre and after spheres accommodate 24 passengers and two additional life-support technicians. Under the DSRV's centre sphere is a hemispherical protrusion or 'skirt' which seals over the disabled submarine's hatch. During the mating operation the skirt is pumped dry to enable personnel to transfer. Operating depth, 1,525 m *(5,000 ft)*. Rescue depth limit 610 m *(2,000 ft)*. Name is not 'official'. Upgraded with modern electronics and navigation systems. In 2001, deployed from UK SSBN *Vanguard* to conduct simulated rescue from Swedish Submarine *Gotland* at 135 m in Raasay Sound, Scotland. To be replaced in 2006 by SRDRS.
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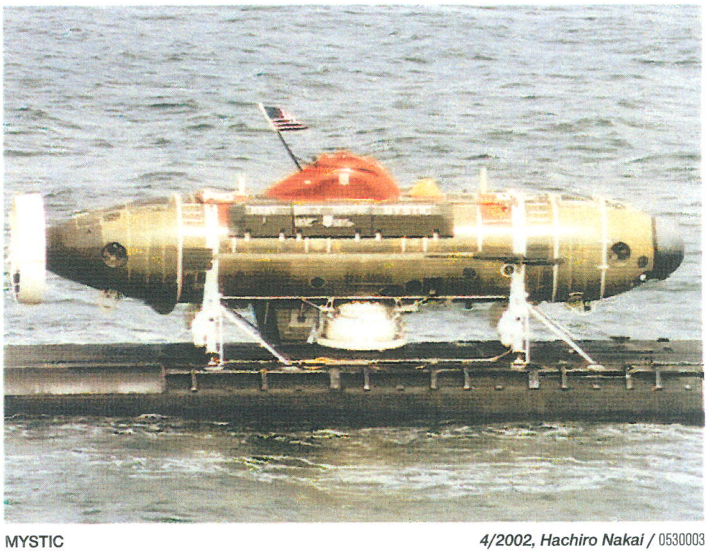


MYSTIC *4/2002, Hachiro Nakai* / 0530003

1 DOLPHIN CLASS (DSV)

Name	*No*	*Builders*	*Launched*	*Commissioned*	*F/S*
DOLPHIN	AGSS 555	Portsmouth Naval Shipyard, NH	8 June 1968	17 Aug 1968	PA

Displacement, tons: 860 standard; 948 full load
Dimensions, feet (metres): 165 × 19.3 × 18 *(50.3 × 5.9 × 5.5)*
Main machinery: Diesel-electric; 2 Detroit 12V42S diesels; 840 hp *(616 kW)* sustained; 2 generators; 1 motor; 1 shaft
Fitted with 246 cell VRLA battery
Speed, knots: 8 dived; 5 surfaced
Complement: 29 (3 officers) plus 4-7 scientists
Radars: Surface search: BPS-15; I/J-band.
Navigation: Furuno; I-band.
Sonars: Ametek BQS 15; active close-range detection; high frequency.
EDO BQR 2; passive search; low frequency; obstacle avoidance.

Comment: Authorised in FY61. Has a constant diameter cylindrical pressure hull approximately 15 ft in outer diameter closed at both ends with hemispherical heads. Pressure hull fabricated of HY-80 steel with aluminium and fibreglass used in secondary structures to reduce weight. No conventional hydroplanes are mounted, improved rudder design and other features provide manoeuvring control and hovering capability. Fitted for deep-ocean sonar and oceanographic research. There are several research stations for scientists and she is fitted to take water samples down to her operating depth. Assigned to Submarine Development Squadron Five at San Diego. Designed for deep diving operations and fitted with Helios seafloor imaging system, Draper Labs integrated navigation system and integrated science suite. Submerged endurance is approximately 24 hours with an at-sea endurance of 14 days. Refitted in 1993. Based at San Diego. Damaged by flooding in June 2002. ***UPDATED***

DOLPHIN *5/2002, Ships of the World* / 0530087

1 CUTTHROAT CLASS (DSV)

Name	*No*	*Builders*	*Commissioned*
CUTTHROAT	LSV-2	Newport News Shipbuilding and General Dynamics Electric Boat Division	Apr 2001

Displacement, tons: 205
Dimensions, feet (metres): 111 × 10 × 9 *(33.8 × 3.1 × 2.7)*
Main machinery: Permanent Magnet electric motor; 3,000 hp(m) *(2.23 MW)*
Speed, knots: 34 dived

Comment: The contract was placed with Newport News and Electric Boat in January 1999 to build *Cutthroat* LSV-2. The largest autonomous unmanned submarine in the world, it is a 1 : 3.4 scaled-down model of the 'Virginia' class submarine and is to be used to test advanced submarine technologies, including hydroacoustics, hydrodynamics and manoeuvring. Its diving depth matches that of the 'Virginia' class. The forward compartment contains 1,680 lead acid batteries and the after compartment contains the propulsion and auxiliary systems together with data recording and control systems. All appendages, including control surfaces and simulated sonar fairing, can be removed or relocated. LSV-2 is operated by the Acoustic Research Department at the instrumented range at Lake Pend Oreille in Bayview, Idaho. It is named after a species of trout indigenous to the lake. ***VERIFIED***

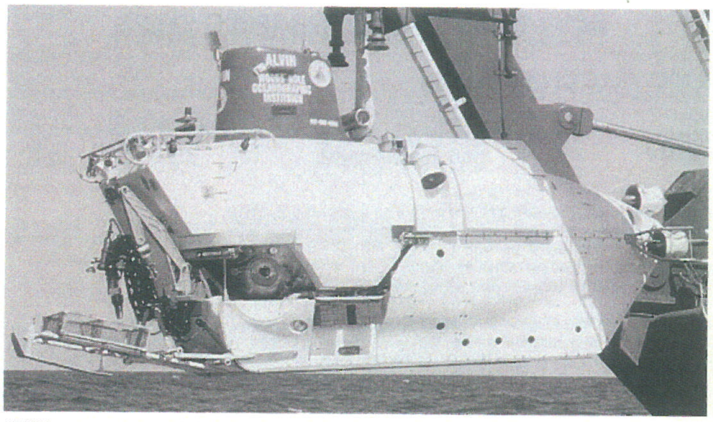
CUTTHROAT *2000, Newport News* / 0105821

1 DEEP SUBMERGENCE VEHICLE: ALVIN TYPE (DSV)

Name	*No*	*Builders*	*F/S*
ALVIN	DSV 2	General Mills Inc, Minneapolis	PSA

Displacement, tons: 18 full load
Dimensions, feet (metres): 26.5 × 8.5 *(8.1 × 2.6)*
Main machinery: 6 brushless DC motors; 6 thrusters; 2 vertical-motion thrusters (located near the centre of gravity); 2 horizontally (near stern) (1 directed athwartships, 1 directed longitudinally); 2 on rotatable shaft near stern for vertical or longitudinal motion
Speed, knots: 2. **Range, miles:** 3 at 0.5 kt
Complement: 3 (1 pilot, 2 observers)

Comment: Built for operation by the Woods Hole Oceanographic Institution for the Office of Naval Research. Original configuration had an operating depth of 6,000 ft. Named for Allyn C Vine of Woods Hole Oceanographic Institution. *Alvin* accidentally sank in 5,051 ft of water on 16 October 1968; subsequently raised in August 1969; refurbished 1970-71 in original configuration. Placed in service on Navy List 1 June 1971. Subsequently refitted with titanium pressure sphere to provide increased depth capability and again operational in November 1973. She has two banks of lead acid batteries, 120 V DC system with 47 kW/h capacity. Operating depth, 4,000 m *(13,120 ft)*. Available for emergency use until 2005. Two other DSVs were placed out of service in 1997/98, one transferred to the Woods Hole Institute. ***UPDATED***



ALVIN *10/2003*, Rod Catanach, Woods Hole Oceanographic Institution* / 0009310

1 NUCLEAR-POWERED OCEAN ENGINEERING AND RESEARCH VEHICLE (DSVN)

Name	*Builders*	*In service*	*F/S*
NR 1	General Dynamics (Electric Boat Div)	27 Oct 1969	ASA

Displacement, tons: 380 surfaced; 700 dived
Dimensions, feet (metres): 145.7 × 12.5 × 15.09 *(44.4 × 3.8 × 4.6)*
Main machinery: Nuclear; 1 PWR; 1 turbo-alternator; 2 motors (external to the hull); 2 props; 4 ducted thrusters (2 vertical, 2 horizontal)
Speed, knots: 3.5 dived
Complement: 13 (3 officers, 2 scientists)

Comment: NR 1 was built primarily to serve as a test platform for a small nuclear propulsion plant; however, the craft additionally provides an advanced deep submergence ocean engineering and research capability. She was the only Naval deep submergence vehicle to be used in the recovery of the wreckage of the space shuttle *Challenger* January to April 1986. Laid down on 10 June 1967; launched on 25 January 1969. Commanded by an officer-in-charge vice commanding officer. First nuclear-propelled service craft. Overhauled and refuelled in 1993. Refitted with a new bow which extended her length by 9.6 ft, and new sonars and cameras. In 1995 and again in 1997 she was used for an archaeological survey of the Carthage-Ostia trade route. In 2002, conducted deep water operations in Gulf of Mexico including study of *Mississippi Canyon* shipwreck site.

The NR 1 has wheels beneath the hull to permit 'bottom crawling' and she is fitted with external lights, external television cameras, a remote-controlled manipulator, and various recovery devices. No periscopes, but fixed television mast. Diving depth, 3,000 ft *(914 m)*. A surface 'mother' ship is required to support her. Based at Groton, Connecticut. ***UPDATED***

NR 1 *7/2000, H M Steele* / 0106816

MILITARY SEALIFT COMMAND (MSC)

Notes: (1) The Military Sealift Command consists of the Naval Fleet Auxiliary Force, Special Missions Ships, Strategic Sealift Force and Prepositioning Programme.
(2) Headquarters are in the Washington Navy Yard, Washington DC. The organisation is commanded by a Vice Admiral, and its five principal area commands (Atlantic, Pacific, Europe, Far East, Central) by Captains.
(3) MSC ships are assigned standard hull designations with the added prefix 'T'. All are unarmed. Ships' funnels have black, grey, blue and gold horizontal bands.

NAVAL FLEET AUXILIARY FORCE

4 SUPPLY CLASS (FAST COMBAT SUPPORT SHIPS) (AOEH)

Name	*No*	*Builder*	*Laid down*	*Launched*	*Commissioned*	*F/S*
SUPPLY	T-AOE 6	National Steel & Shipbuilding Co	24 Feb 1989	6 Oct 1990	26 Feb 1994	AA
RAINIER	T-AOE 7	National Steel & Shipbuilding Co	31 May 1990	28 Sep 1991	21 Jan 1995	PA
ARCTIC	T-AOE 8	National Steel & Shipbuilding Co	2 Dec 1991	30 Oct 1993	16 Sep 1995	AA
BRIDGE	T-AOE 10	National Steel & Shipbuilding Co	16 Sep 1993	25 Aug 1996	5 Aug 1998	PA

Displacement, tons: 19,700 light; 49,000 full load
Dimensions, feet (metres): 753.7 × 107 × 38 *(229.7 × 32.6 × 11.6)*
Main machinery: 4 GE LM 2500 gas turbines; 105,000 hp *(78.33 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 6,000 at 22 kt
Complement: 176 civilian; 27 military
Cargo capacity: 156,000 barrels of fuel; 1,800 tons ammunition; 400 tons refrigerated cargo; 250 tons general cargo; 20,000 gallons water
Helicopters: 2 CH-46E.

Comment: Construction started in June 1988. *Supply* decommissioned and transferred to MSC in July 2001, *Arctic* in June 2002, *Rainier* in August 2003 and *Bridge* in June 2004. Ships have six RAS stations, four 10-ton cargo booms and two Vertrep positions. ***UPDATED***

RAINIER *4/2000*, Royal Australian Navy* / 0572795

0 + 6 (6) LEWIS AND CLARK CLASS (DRY CARGO/AMMUNITION SHIPS) (AKEH)

Name	*No*	*Builders*	*Commissioned*
LEWIS AND CLARK	T-AKE 1	National Steel & Shipbuilding Co	Mar 2005
SACAGAWEA	T-AKE 2	National Steel & Shipbuilding Co	Sep 2005
–	T-AKE 3	National Steel & Shipbuilding Co	2006
–	T-AKE 4	National Steel & Shipbuilding Co	2007
–	T-AKE 5	National Steel & Shipbuilding Co	2008
–	T-AKE 6	National Steel & Shipbuilding Co	2008

Displacement, tons: 23,852 light; 40,298 full load
Dimensions, feet (metres): 689 × 106 × 29.5 *(210 × 32.3 × 9.0)*
Main machinery: Integrated electric propulsion; 4 FM/MAN B&W 9L and 8L 48/60 diesel generators (35.7 MW); 2 Alstom motors; 1 shaft; fixed pitch prop
Speed, knots: 20. **Range, miles:** 14,000 at 20 kt
Complement: 172 (31 officers)
Cargo capacity: 5,463 tons dry; 2,390 tons fuel
Helicopters: 2 CH-46D Sea Knight or HH-60 Sea Hawk.

Comment: Design and construction contract placed on 18 October 2001 for delivery of first and second vessels in 2005. Contract for construction of the third of class in July 2002 and for the fourth in July 2003. A further two were ordered in January 2004. Six further ships are to be ordered by 2008. Capable of carrying 7,000 tons of dry cargo and 23,500 barrels of diesel and jet aviation fuel, the ships are to be built to commercial standards to replace existing AE and AFS. Three RAS stations are to be fitted each side.

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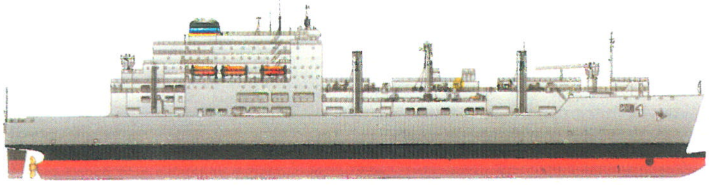

LEWIS AND CLARK (artist's impression) *2001, NASSCO* / 0096365

3 MARS CLASS: COMBAT STORE SHIPS (AFSH)

Name	*No*	*Builders*	*Commissioned*	*F/S*
NIAGARA FALLS	T-AFS 3	National Steel & Shipbuilding Co	29 Apr 1967	TPA
CONCORD	T-AFS 5	National Steel & Shipbuilding Co	27 Nov 1968	TPA
SAN JOSE	T-AFS 7	National Steel & Shipbuilding Co	23 Oct 1970	TAA

Displacement, tons: 9,200 light; 15,900-18,663 full load
Dimensions, feet (metres): 581 × 79 × 26 *(177.1 × 24.1 × 7.9)*
Main machinery: 3 Babcock & Wilcox boilers; 580 psi *(40.8 kg/cm²)*; 825°F *(440°C)*; 1 De Laval turbine (Westinghouse in AFS 6); 22,000 hp *(16.4 MW)*; 1 shaft
Speed, knots: 20. **Range, miles:** 10,000 at 18 kt
Complement: 123-134 civilians plus 29-49 naval
Cargo capacity: 2,625 tons dry stores; 1,300 tons refrigerated stores (varies with specific loadings)
Radars: Navigation: 2 Raytheon; I-band.
Tacan: URN 25.
Helicopters: 2 CH-46E Sea Knight or commercial equivalent.

Comment: *Concord* transferred to MSC on 15 October 1992 after disarming and conversion to a civilian crew. *San Jose* followed on 2 November 1993 and *Niagara Falls* on 23 September 1994. All have accommodation improvements and stores lifts installed. These ships carry comprehensive inventories of aviation spare parts as well as the cargo listed above. Two others of the class de-activated in 1997.

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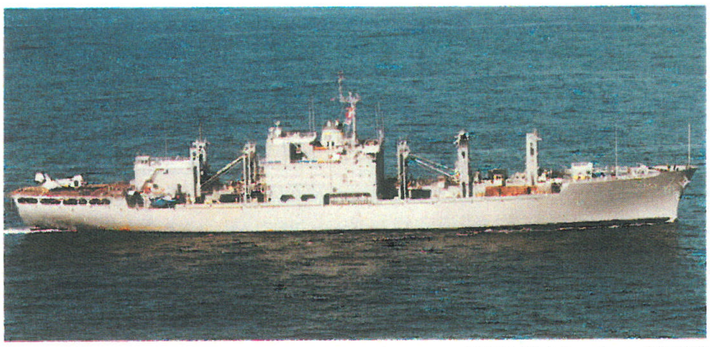

SAN JOSE *4/2001, Mick Prendergast* / 0131281

6 KILAUEA CLASS: AMMUNITION SHIPS (AEH)

Name	*No*	*Builders*	*Commissioned*	*F/S*
KILAUEA	T-AE 26	General Dynamics, Quincy	10 Aug 1968	TAA/ROS
SANTA BARBARA	T-AE 28	Bethlehem Steel	11 July 1970	TAA/ROS
FLINT	T-AE 32	Ingalls Shipbuilding	20 Nov 1971	TPA
SHASTA	T-AE 33	Ingalls Shipbuilding	26 Feb 1972	TPA
MOUNT BAKER	T-AE 34	Ingalls Shipbuilding	22 July 1972	TAA
KISKA	T-AE 35	Ingalls Shipbuilding	16 Dec 1972	TPA

Displacement, tons: 9,340 light; 19,940 full load
Dimensions, feet (metres): 564 × 81 × 28 *(171.9 × 24.7 × 8.5)*
Main machinery: 3 Foster-Wheeler boilers; 600 psi *(42.3 kg/cm²)*; 870°F *(467°C)*; 1 GE turbine; 22,000 hp *(16.4 MW)*; 1 shaft
Speed, knots: 20. **Range, miles:** 10,000 at 18 kt
Complement: 125-133 civilians plus 7-24 naval
Radars: Navigation: 2 Raytheon; I-band.
Tacan: URN 25.
Helicopters: 2 CH-46E Sea Knight (cargo normally embarked).

Comment: *Kilauea* transferred to MSC 1 October 1980, *Flint* in August 1995, *Kiska* in August 1996, *Mount Baker* in December 1996, *Shasta* in October 1997 and *Santa Barbara* in September 1998. An eighth of class was to have transferred in 1999, but has been decommissioned. *Butte* decommissioned in 2002. With the exception of *Santa Barbara*, ships underwent a civilian modification overhaul during which accommodation was improved. Main armament taken out. Seven UNREP stations operational: four port, three starboard. *Kilauea* (Port Hueneme, CA), *Santa Barbara* (Charleston, SC) are kept in reduced operating status.

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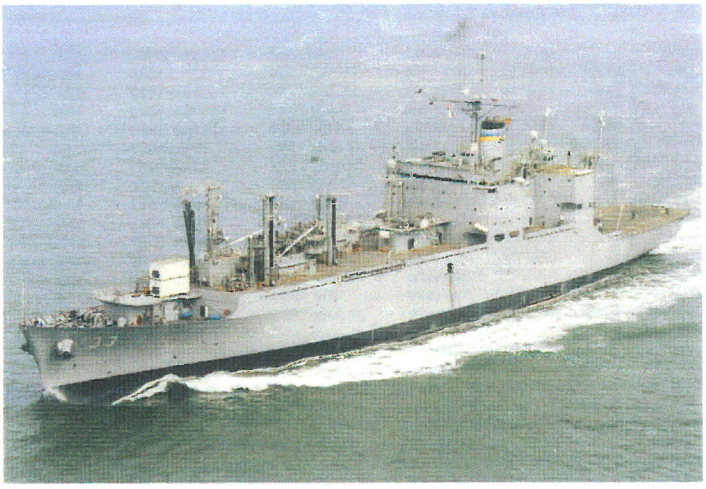

SHASTA *10/2003*, Frank Findler* / 0572794

3 SIRIUS (LYNESS) CLASS: COMBAT STORES SHIP (AFSH)

Name	*No*	*Builders*	*Commissioned*	*F/S*
SIRIUS (ex-*Lyness*)	T-AFS 8	Swan Hunter & Wigham Richardson Ltd, Wallsend-on-Tyne	22 Dec 1966	TAA
SPICA (ex-*Tarbatness*)	T-AFS 9	Swan Hunter & Wigham Richardson Ltd, Wallsend-on-Tyne	21 Mar 1967	TPA
SATURN (ex-*Stromness*)	T-AFS 10	Swan Hunter & Wigham Richardson Ltd, Wallsend-on-Tyne	10 Aug 1967	TAA

Displacement, tons: 9,010 light; 16,792 full load
Measurement, tons: 7,782 dwt; 12,359 gross; 4,744 net
Dimensions, feet (metres): 524 × 72 × 22 *(159.7 × 22 × 6.7)*
Main machinery: 1 Wallsend-Sulzer 8RD76 diesel; 11,520 hp *(8.59 MW)*; 1 shaft
Speed, knots: 18. **Range, miles:** 12,000 at 16 kt
Complement: 108-119 civilians plus 29-49 naval
Cargo capacity: 8,313 m³ dry; 3,921 m³ frozen
Radars: Navigation: 2 Raytheon; I-band.
Tacan: URN 25.
Helicopters: 2 CH-46E Sea Knight or commercial equivalent.

Comment: After a period of charter *Sirius* was purchased from the UK on 1 March 1982, *Spica* on 30 September 1982 and *Saturn* on 1 October 1983. All refitted from August 1992-96 to improve communications, RAS facilities and cargo handling equipment.

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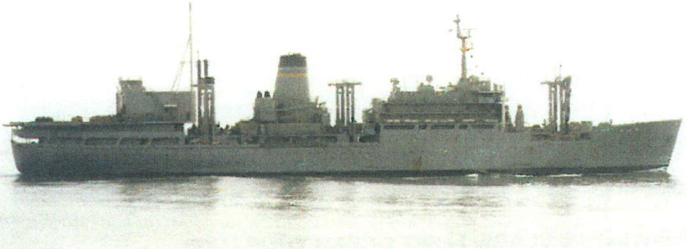

SIRIUS *7/2002, John Chaney* / 0529970

2 MERCY CLASS: HOSPITAL SHIPS (AHH)

Name	*No*	*Builders*	*Commissioned*	*F/S*
MERCY (ex-SS *Worth*)	T-AH 19	National Steel & Shipbuilding Co	1976	ROS/TPA
COMFORT (ex-SS *Rose City*)	T-AH 20	National Steel & Shipbuilding Co	1976	ROS/TAA

Displacement, tons: 69,360 full load
Measurement, tons: 54,367 gross; 35,958 net
Dimensions, feet (metres): 894 × 105.6 × 32.8 *(272.6 × 32.2 × 10)*
Main machinery: 2 boilers; 2 GE turbines; 24,500 hp *(18.3 MW)*; 1 shaft
Speed, knots: 17. **Range, miles:** 13,420 at 17 kt
Complement: 73 civilian crew; 820 naval medical staff; 387 naval support staff
Radars: Navigation: SPS-67; I-band.
Tacan: URN 25.
Helicopters: Platform only.

Comment: Converted 'San Clemente' class tankers. *Mercy* was commissioned 19 December 1986; *Comfort* on 30 November 1987. Each ship has 1,000 beds and 12 operating theatres. Normally, the ships are kept in a reduced operating status in Baltimore, MD, and San Diego, CA, by a small crew of civilian mariners and active duty Navy medical and support personnel. Each ship can be fully activated and crewed within five days.

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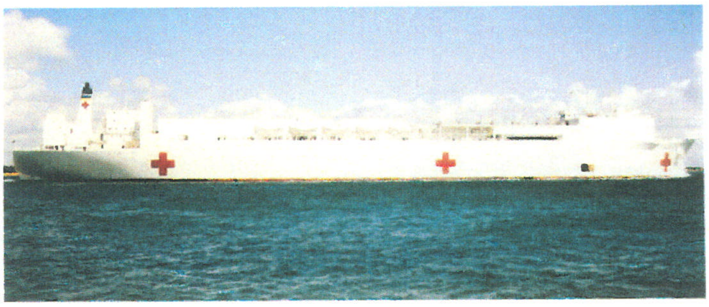

COMFORT *7/2002, Walter Sartori* / 0529969

14 HENRY J KAISER CLASS: OILERS (AOH)

Name	*No*	*Builders*	*Laid down*	*Commissioned*	*F/S*
HENRY J KAISER	T-AO 187	Avondale	22 Aug 1984	19 Dec 1986	TAA/ROS
JOHN LENTHALL	T-AO 189	Avondale	15 July 1985	2 June 1987	TAA
WALTER S DIEHL	T-AO 193	Avondale	8 July 1986	13 Sep 1988	TPA
JOHN ERICSSON	T-AO 194	Avondale	15 Mar 1989	18 Mar 1991	TPA
LEROY GRUMMAN	T-AO 195	Avondale	7 June 1987	2 Aug 1989	TAA
KANAWHA	T-AO 196	Avondale	13 July 1989	6 Dec 1991	TAA
PECOS	T-AO 197	Avondale	17 Feb 1988	6 July 1990	TPA
BIG HORN	T-AO 198	Avondale	9 Oct 1989	31 July 1992	TAA
TIPPECANOE	T-AO 199	Avondale	19 Nov 1990	26 Mar 1993	TPA
GUADALUPE	T-AO 200	Avondale	9 July 1990	26 Oct 1992	TPA
PATUXENT	T-AO 201	Avondale	16 Oct 1991	21 June 1995	TAA
YUKON	T-AO 202	Avondale	13 May 1991	11 Dec 1993	TPA
LARAMIE	T-AO 203	Avondale	1 Oct 1994	24 May 1996	TAA
RAPPAHANNOCK	T-AO 204	Avondale	29 June 1992	7 Nov 1995	TPA

Displacement, tons: 40,700; 42,000 (T-AO 201, 203-204) full load
Dimensions, feet (metres): 677.5 × 97.5 × 36 *(206.5 × 29.7 × 10.9)*
Main machinery: 2 Colt-Pielstick 10 PC4.2 V 570 diesels; 34,422 hp(m) *(24.3 MW)* sustained; 2 shafts; cp props
Speed, knots: 20. **Range, miles:** 6,000 at 18 kt
Complement: 81 civilian (18 officers); 23 naval (1 officer) plus 22 spare
Cargo capacity: 180,000; 159,500 (T-AO 201, 203-204) barrels of fuel oil or aviation fuel
Countermeasures: Decoys: SLQ-25 Nixie; towed torpedo decoy.
Radars: Navigation: 2 Raytheon; I-band.
Helicopters: Platform only.

Comment: Construction was delayed initially by design difficulties, by excessive vibration at high speeds and other problems encountered in the first ship of the class. There are stations on both sides for underway replenishment of fuel and solids. Fitted with integrated electrical auxiliary propulsion. T-AOs 201, 203 and 204 were delayed by the decision to fit double hulls to meet the requirements of the Oil Pollution Act of 1990. This modification increases construction time from 32 to 42 months and reduces cargo capacity by 17 per cent although this can be restored in an emergency. Hull separation is 1.83 m at the sides and 1.98 m on the bottom. T-AOs 191 and 192 were transferred from Penn Ship (when the yard became bankrupt) to Tampa. Tampa's contract was also cancelled on 25 August 1993, with both vessels still incomplete. T-AO 192 was removed from the Register in late 1997. T-AO 187 is kept in reduced operating status on the west coast. T-AO 188 and 190 were laid up in mid-1996 and T-AO 189 in September 1997, but the latter was back in service in January 1999.

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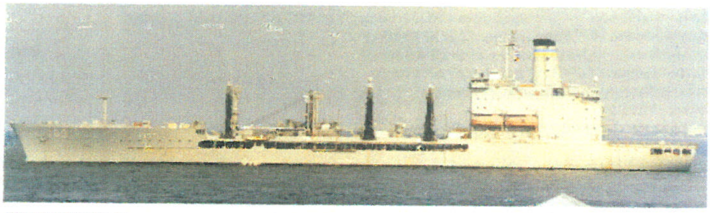
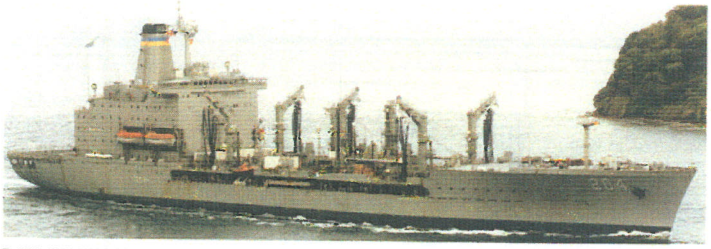

JOHN LENTHALL *9/2003*, Jürg Kürsener* / 0572793


RAPPAHANNOCK *4/2002, Hachiro Nakai* / 0547602

5 POWHATAN CLASS: FLEET OCEAN TUGS (ATF)

Name	*No*	*Laid down*	*Commissioned*	*F/S*
CATAWBA	T-ATF 168	14 Dec 1977	28 May 1980	TPA
NAVAJO	T-ATF 169	14 Dec 1977	13 June 1980	TPA
MOHAWK	T-ATF 170	22 Mar 1979	16 Oct 1980	TAA
SIOUX	T-ATF 171	22 Mar 1979	1 May 1981	TPA
APACHE	T-ATF 172	22 Mar 1979	30 July 1981	TAA

Displacement, tons: 2,260 full load
Dimensions, feet (metres): 240.2 × 42 × 15 *(73.2 × 12.8 × 4.6)*
Main machinery: 2 GM EMD 20-645F7B diesels; 7,250 hp(m) *(5.41 MW)* sustained; 2 shafts; Kort nozzles; cp props; bow thruster; 300 hp *(224 kW)*
Speed, knots: 14.5. **Range, miles:** 10,000 at 13 kt
Complement: 20 (16 civilians, 4 naval communications technicians)
Guns: Space provided to fit 2—20 mm and 2—12.7 mm MGs.
Radars: Navigation: Raytheon 1660/12 and SPS-64(V)9; I-band.

Comment: Built at Marinette Marine Corp, Wisconsin patterned after commercial offshore supply ship design. Originally intended as successors to the 'Cherokee' and 'Abnaki' class ATFs. All transferred to MSC upon completion. 10 ton capacity crane and a bollard pull of at least 54 tons. A 'deck grid' is fitted aft which contains 1 in bolt receptacles spaced 24 in apart. This allows for the bolting down of a wide variety of portable equipment. There are two GPH fire pumps supplying three fire monitors with up to 2,200 gallons of foam per minute. A deep module can be embarked to support naval salvage teams. Two others of the class deactivated for commercial lease in 1999.

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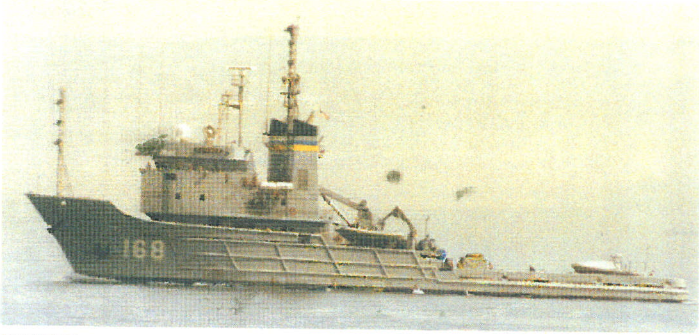
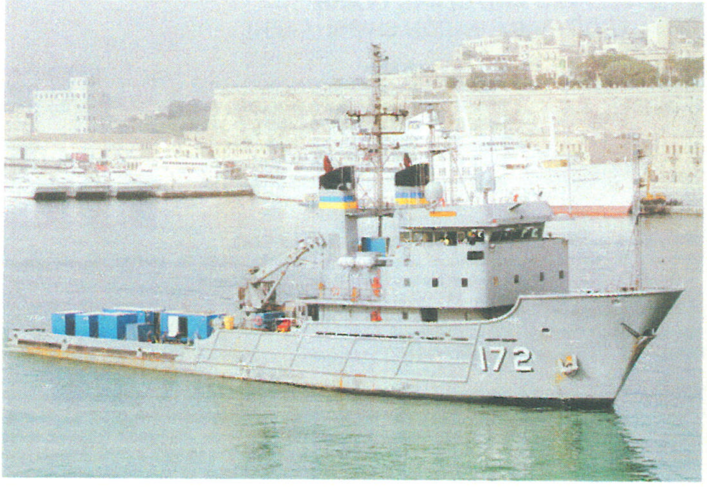
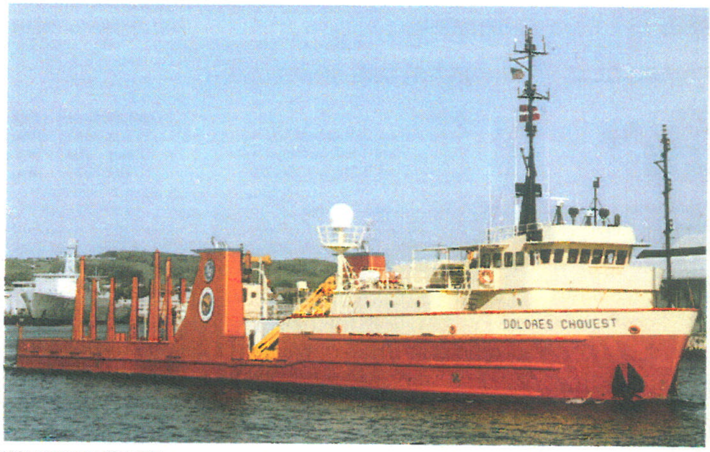

CATAWBA *4/2003*, A Sharma* / 0572792


APACHE *1/2002, van Ginderen Collection* / 0144269

SPECIAL MISSION SHIPS

Notes: (1) Civilian operated but some technical work, communications and research is done by naval personnel. Average of 25 days a month are spent at sea.
(2) There are also five chartered vessels: *Carolyn Chouest* (NR-1 support ship), *Kellie Chouest* and *Dolores Chouest* (both deep submergence submarine support ships), and *Cory Chouest* (support ship for IFA TAGOS trials). These ships are owned and operated by Edison Chouest. *C-Commando* supports Naval Special Warfare Command.


DOLORES CHOUEST *5/2002, L-G Nilsson* / 0529993

1 HAYES CLASS: ACOUSTIC SURVEY SHIP (AGE)

Name	*No*	*Builders*	*Commissioned*	*F/S*
HAYES	T-AG 195 (ex-AGOR 16)	Todd Shipyards, Seattle, WA	21 July 1971	TAA

Displacement, tons: 4,037 full load
Dimensions, feet (metres): 256.5 × 75 (see *Comment*) × 22 *(78.2 × 22.9 × 6.7)*
Main machinery: Diesel-electric; 2 Caterpillar 3516TA diesels; 3,620 hp *(2.7 MW)* sustained; 2 generators; 2 Westinghouse motors; 2,400 hp *(1.79 MW)*; 2 auxiliary diesels (for creep speed); 330 hp *(246 kW)*; 2 shafts; LIPS cp props
Speed, knots: 10. **Range, miles:** 2,000 at 10 kt
Complement: 20 civilian plus 30 scientists
Radars: Navigation: Raytheon TM 1650/6X and TM 1660/12S; I-band.

Comment: Catamaran hull. Laid down 12 November 1969; launched 2 July 1970. To Ready Reserve 10 June 1983 and transferred to James River (Maritime Administration) for lay-up in 1984 having been too costly to operate. Under FY86 programme was converted to Acoustic Research Ship (AG); reclassified T-AG 195 and completed in early 1992 after five years' work in two shipyards. Mission is to transport, deploy and retrieve acoustic arrays, to conduct acoustic surveys in support of the submarine noise reduction programme and to carry out acoustic testing. Catamaran hull design provides large deck working area, centre well for operating equipment at great depths, and removes laboratory areas from main propulsion machinery. Each hull is 246 ft long and 24 ft wide (maximum). There are three 36 in diameter instrument wells in addition to the main centre well.

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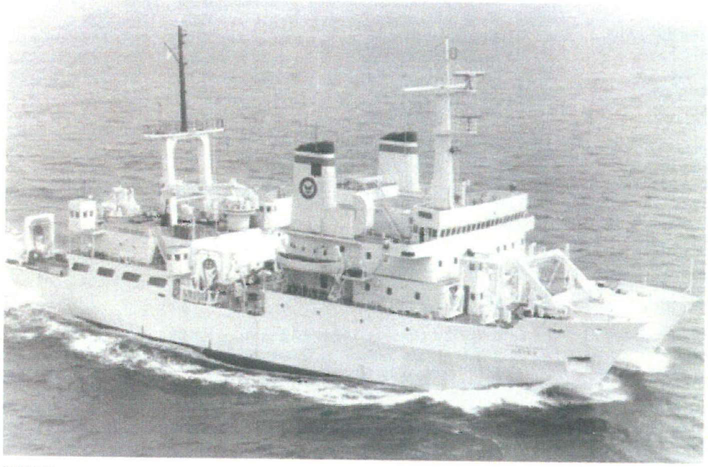

HAYES *2/1992*

1 ZEUS CLASS: CABLE REPAIRING SHIP (ARC)

Name	*No*	*Builders*	*Commissioned*	*F/S*
ZEUS	T-ARC 7	National Steel & Shipbuilding Co	19 Mar 1984	TAA

Displacement, tons: 8,370 light; 14,934 full load
Dimensions, feet (metres): 513 × 73 × 25 *(156.4 × 22.3 × 7.6)*
Main machinery: Diesel-electric; 5 GM EMD 20-645F7B diesel generators; 14.32 MW sustained; 2 motors; 10,200 hp *(7.51 MW)*; 2 shafts; cp props; bow thrusters (forward and aft)
Speed, knots: 15.8. **Range, miles:** 10,000 at 15 kt
Complement: 51 civilians plus 6 Navy plus 10 scientists

Comment: Ordered 7 August 1979. Remotely manned engineering room controlled from the bridge. Can lay up to 1,000 miles of cable in depths of 9,000 ft. As well as cable laying the ship is equipped for oceanographic survey. ***VERIFIED***

ZEUS *3/1999, M Declerck* / 0084175

1 CONVERTED COMPASS ISLAND CLASS: MISSILE RANGE INSTRUMENTATION SHIP (AGM)

Name	*No*	*Builders*	*Commissioned*	*F/S*
OBSERVATION ISLAND (ex-*Empire State Mariner*)	T-AGM 23 (ex-AG 154, ex-YAG 57)	New York Shipbuilding	5 Dec 1958	TPA

Displacement, tons: 13,060 light; 17,015 full load
Dimensions, feet (metres): 564 × 76 × 25 *(171.6 × 23.2 × 7.6)*
Main machinery: 2 Foster-Wheeler boilers; 600 psi *(42.3 kg/cm²)*; 875°F *(467°C)*; 1 GE turbine; 19,250 hp *(14.36 MW)*; 1 shaft
Speed, knots: 20. **Range, miles:** 17,000 at 15 kt
Complement: 66 civilians plus 59 scientists
Missiles: SLBM: She fired the first ship-launched Polaris missile at sea on 27 August 1959. Refitted to fire the improved Poseidon missile in 1969 and launched the first Poseidon test missile fired afloat on 16 December 1969.
Radars: Navigation: Raytheon 1650/9X and 1660/12S; I-band.
Tacan: URN 25.

Comment: Built as a 'Mariner' class merchant ship (C4-S-A1 type); launched on 15 August 1953; acquired by the Navy on 10 September 1956 for use as a Fleet Ballistic Missile (FBM) test ship. Converted at Norfolk Naval Shipyard. In reserve from September 1972. On 18 August 1977, *Observation Island* was reacquired by the US Navy from the Maritime Administration and transferred to the Military Sealift Command. Reclassified AGM 23 on 1 May 1979. Converted to Missile Range Instrumentation Ship from July 1979-April 1981 at Maryland SB and DD Co to carry an Air Force shipborne phased-array radar system for collection of data on foreign ballistic missile tests. Operated by the Navy in the North Pacific for the US Air Force Intelligence Command, Patrick Air Force Base, Florida. ***VERIFIED***

OBSERVATION ISLAND *8/2002, Hachiro Nakai* / 0530006

1 STALWART CLASS: MISSILE RANGE INSTRUMENTATION/AIR DEFENSE SHIP (AGOS)

Name	*No*	*Laid down*	*Commissioned*	*F/S*
CAPABLE	T-AGOS 16	17 Oct 1987	8 July 1989	TAA

Displacement, tons: 2,285 full load
Dimensions, feet (metres): 224 × 43 × 14.9 *(68.3 × 13.1 × 4.5)*
Main machinery: Diesel-electric; 4 Caterpillar D 398B diesel generators; 3,200 hp *(2.39 MW)*; 2 motors; 1,600 hp *(1.2 MW)*; 2 shafts; bow thruster; 550 hp *(410 kW)*
Speed, knots: 11. **Range, miles:** 4,000 at 11 kt
Complement: 38 (18 civilian; 20 Navy/CG)
Radars: Air search: SPS-49; C-band.
Surface search: Furuno; E/F-band.
Navigation: Furuno; I-band.
IFF: UPX-36.

Comment: Built by Halter Marine. Last of a class of ships built to provide undersea surveillance, air surveillance and space tracking. Modified for drug interdiction patrols in support of the Joint Interagency Task Force (East), with air search radar replacing the array winch systems, has now been transferred to air surveillance operations. Other ships in this class have been transferred to other agencies or countries. ***UPDATED***

CAPABLE *6/2003*, US Navy* / 0572809

1 IMPECCABLE CLASS: OCEAN SURVEILLANCE SHIP (AGOS)

Name	*No*	*Builders*	*Commissioned*	*F/S*
IMPECCABLE	T-AGOS 23	Tampa Shipyard/Halter Marine	Oct 2000	TAA

Displacement, tons: 5,370 full load
Dimensions, feet (metres): 281.5 × 95.8 × 26 *(85.8 × 29.2 × 7.9)*
Main machinery: Diesel-electric; 3 GM EMD 12-645F7B diesel generators; 5.48 MW *(60 Hz)* sustained; 2 Westinghouse motors; 5,000 hp *(3.73 MW)*; 2 shafts; 2 omni-thruster hydrojets; 1,800 hp *(1.34 MW)*
Speed, knots: 12; 3 when towing. **Range, miles:** 3,000 at 12 kt
Complement: 20 civilians plus 5 scientists plus 20 Navy
Radars: Navigation: Raytheon; I-band.
Sonars: SURTASS; passive surveillance towed array.

Comment: Hull form based on that of *Victorious*. Acoustic systems include an active low frequency towed array (LFA), which has a series of modules each of which houses two high-powered active transducers. These can be used with either mono or bistatic receivers. The payload is lowered through a centre well. Laid down 2 February 1993. Ship was 60 per cent complete when shipyard encountered difficulties that led to termination in October 1993 of the contract for completion of two 'Kaiser' class oilers. Work stopped on *Impeccable*, and the construction contract was also cancelled. The contract was assigned to Halter Marine on 20 April 1995 to complete the ship. Launched in April 1998. WSC-3(V)3 and WSC-6 communications fitted. ***VERIFIED***

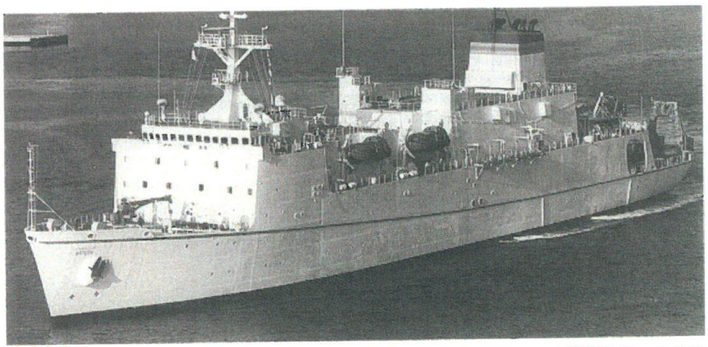
IMPECCABLE *9/2002, Winter & Findler* / 0529991

1 WATERS CLASS: NAVIGATION TEST SUPPORT SHIP (AGM)

Name	*No*	*Builders*	*Commissioned*	*F/S*
WATERS	T-AG 45	Avondale Industries	26 May 1993	TAA

Displacement, tons: 12,208 full load
Dimensions, feet (metres): 455 × 68.9 × 21 *(138.7 × 21 × 6.4)*
Main machinery: Diesel-electric; 5 GM EMD diesels; 7,400 hp *(5.45 MW)*; 2 Westinghouse motors; 6,800 hp *(15.07 MW)*; 2 shafts; 4 thrusters
Speed, knots: 12. **Range, miles:** 6,500 at 12 kt
Complement: 66 civilians plus 59 scientists
Radars: Navigation: 2 Raytheon; E/F- and I-bands.

Comment: Ordered 4 April 1990. Laid down 16 May 1991 and launched 6 June 1992. Carried out oceanographic and acoustic surveys in support of the Integrated Underwater Surveillance System. Converted in 1998 to support submarine navigation system testing and missile tracking. In 1999 has replaced *Vanguard* and *Range Sentinel*, both of which have been deactivated. ***UPDATED***



WATERS *4/1994, Giorgio Arra*

1 JOHN McDONNELL CLASS: SURVEYING SHIP (AGS)

Name	*No*	*Builders*	*Commissioned*	*F/S*
JOHN McDONNELL	T-AGS 51	Halter Marine	16 Dec 1991	TPA

Displacement, tons: 2,054 full load
Dimensions, feet (metres): 208 × 45 × 14 *(63.4 × 13.7 × 4.3)*
Main machinery: 1 GM EMD 12-645E6 diesel; 2,550 hp *(1.9 MW)* sustained; 1 auxiliary diesel; 230 hp *(172 kW)*; 1 shaft
Speed, knots: 12. **Range, miles:** 13,800 at 12 kt
Complement: 22 civilians plus 11 scientists

Comment: Laid down on 3 August 1989 and launched on 15 August 1990. Carry 34 ft survey launches for data collection in coastal regions with depths between 10 and 600 m and in deep water to 4,000 m. A small diesel is used for propulsion at towing speeds of up to 6 kt. Simrad high-frequency active hull-mounted and side scan sonars are carried. *Littlehales* was deactivated in March 2003 and transferred to NOAA. ***UPDATED***

JOHN McDONNELL *4/1999, A Sharma* / 0084180

3 VICTORIOUS CLASS: OCEAN SURVEILLANCE SHIPS (AGOS)

Name	*No*	*Builders*	*Commissioned*	*F/S*
VICTORIOUS	T-AGOS 19	McDermott Marine	5 Sep 1991	TPA
EFFECTIVE	T-AGOS 21	McDermott Marine	27 Jan 1993	TPA
LOYAL	T-AGOS 22	McDermott Marine	1 July 1993	TAA

Displacement, tons: 3,396 full load
Dimensions, feet (metres): 234.5 × 93.6 × 24.8 *(71.5 × 28.5 × 7.6)*
Main machinery: Diesel-electric; 4 Caterpillar 3512TA diesels; 5,440 hp *(4 MW)* sustained; 2 GE motors; 3,200 hp *(2.39 MW)*; 2 shafts; 2 bow thrusters; 2,400 hp *(1.79 MW)*
Speed, knots: 16; 3 when towing
Complement: 22 civilian plus 5 Navy
Radars: Navigation: 2 Raytheon; I-band.
Sonars: SURTASS and LFA; towed array; passive/active surveillance.

Comment: All of SWATH design because of its greater stability at slow speeds in high latitudes under adverse weather conditions. A contract for the first SWATH ship, T-AGOS 19, was awarded in November 1986, and options for a further three were exercised in October 1988. Same WSC-6 communications, links and operating procedures as the 'Stalwart' class. T-AGOS 20 conducted trials with a Reduced Diameter Array (RDA) with an enhanced signal processor. The Low Frequency Active component produces both mono and bistatic performance against submerged diesel submarines in shallow water. Short thin-line twin arrays have also been developed. T-AGOS 20 deactivated in July 2003.

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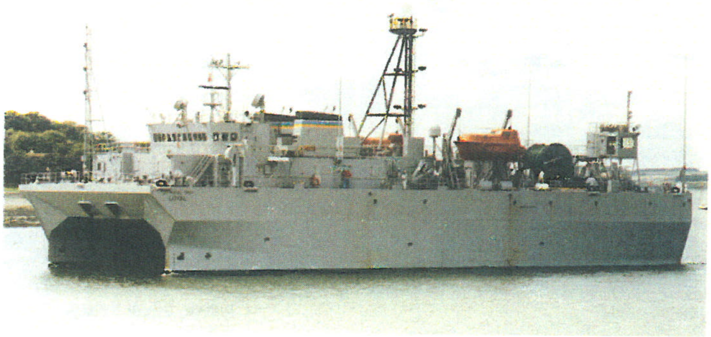

LOYAL *6/2002, John Brodie* / 0530005

6 PATHFINDER CLASS: SURVEYING SHIPS (AGS)

Name	*No*	*Builders*	*Launched*	*Commissioned*	*F/S*
PATHFINDER	T-AGS 60	Halter Marine	7 Oct 1993	5 Dec 1994	TAA
SUMNER	T-AGS 61	Halter Marine	19 May 1994	30 May 1995	TPA
BOWDITCH	T-AGS 62	Halter Marine	15 Oct 1994	30 Dec 1995	TPA
HENSON	T-AGS 63	Halter Marine	21 Oct 1996	20 Feb 1998	TAA
BRUCE C HEEZEN	T-AGS 64	Halter Marine	17 Dec 1998	13 Jan 2000	TAA
MARY SEARS	T-AGS 65	Halter Marine	19 Oct 2000	17 Dec 2001	TAA

Displacement, tons: 4,762 full load
Dimensions, feet (metres): 328.5 × 58 × 19 *(100.1 × 17.7 × 5.8)*
Main machinery: Diesel-electric; 4 EMD/Baylor diesel generators; 11,425 hp *(8.52 MW)*; 2 GE CDF 1944 motors; 8,000 hp *(5.97 MW)* sustained; 6,000 hp *(4.48 MW)*; 2 LIPS Z drives; bow thruster; 1,500 hp *(1.19 MW)*
Speed, knots: 16. **Range, miles:** 12,000 at 12 kt
Complement: 24 civilians plus 27 oceanographers

Comment: Contract awarded in January 1991 for two ships with an option for a third which was taken up on 29 May 1992. A fourth ship was ordered in October 1994 with an option for two more. Fifth ordered 15 January 1997 and sixth on 6 January 1999. There are three multipurpose cranes and five winches plus a variety of oceanographic equipment including multibeam echo-sounders, towed sonars and expendable sensors. ROVs may be carried. Replacements for 'Robert D Conrad' class, all of which have been paid off or leased to other countries.

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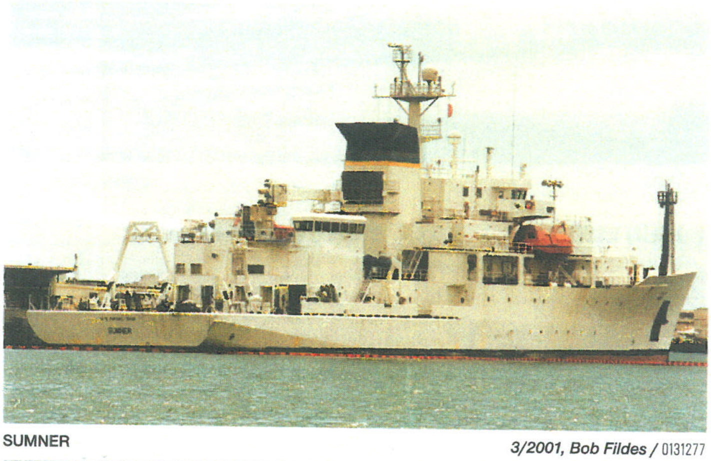
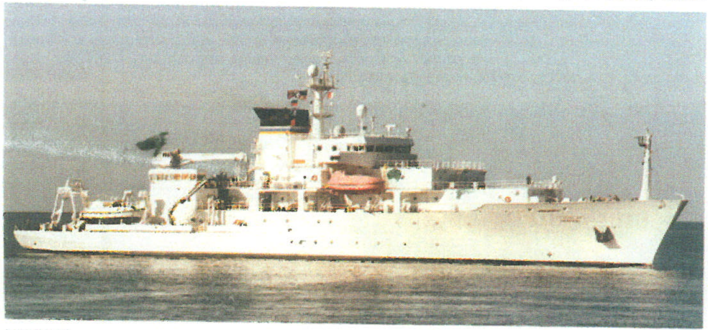


SUMNER *3/2001, Bob Fildes* / 0131277



HENSON *8/2002, John Brodie* / 0530035

STRATEGIC SEALIFT FORCE

Notes: These ships provide ocean transportation for Defense and other government agencies. As well as those listed below, MSC also contracts additional tankers and dry cargo ships as needed. As a result these numbers vary with the operational requirement.

2 SHUGHART CLASS: LARGE, MEDIUM-SPEED, RO-RO (LMSR) SHIPS (AKR)

Name	*No*	*Commissioned*	*F/S*
SHUGHART (ex-*Laura Maersk*)	T-AKR 295	7 May 1996	TWWR
YANO (ex-*Leise Maersk*)	T-AKR 297	8 Feb 1997	TWWR

Measurement, tons: 54,298 grt
Dimensions, feet (metres): 906.8 × 105.5 × 34.4 *(276.4 × 32.2 × 10.5)*
Main machinery: 1 Burmeister & Wain 12L90 GFCA diesel; 46,653 hp(m) *(34.29 MW)*; 1 shaft; bow and stern thrusters
Speed, knots: 24. **Range, miles:** 12,000 at 24 kt
Complement: 26-45 civilian; up to 50 Navy
Cargo capacity: 255,064 sq ft plus 47,023 sq ft deck cargo
Radars: Navigation: 2 Sperry ARPA; I-band.

Comment: Both were container ships built in Denmark in 1981 and lengthened by Hyundai in 1987. Conversion contract awarded to National Steel and Shipbuilding in July 1993. Both fitted with a stern slewing ramp, side accesses and cranes for both roll-on/roll-off and lift-on/lift-off capabilities. Two twin 55 ton cranes. Conversion for *Shughart* started in June 1994; *Yano* in May 1995; *Soderman* underwent conversion to maritime prepositioning ship and renamed *Stockham*.

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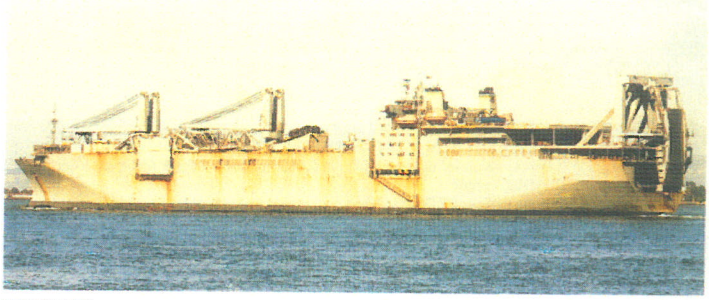

SHUGHART *10/2003*, Frank Findler* / 0572748

8 ALGOL CLASS: FAST SEALIFT SHIPS (AKRH)

Name	*No*	*Builders*	*Delivered*
ALGOL (ex-SS *Sea-Land Exchange*)	T-AKR 287	Rotterdamsche DD Mij NV, Rotterdam	7 May 1973
BELLATRIX (ex-SS *Sea-Land Trade*)	T-AKR 288	Rheinstahl Nordseewerke, Emden, West Germany	6 Apr 1973
DENEBOLA (ex-SS *Sea-Land Resource*)	T-AKR 289	Rotterdamsche DD Mij NV, Rotterdam	4 Dec 1973
POLLUX (ex-SS *Sea-Land Market*)	T-AKR 290	A G Weser, Bremen, West Germany	20 Sep 1973
ALTAIR (ex-SS *Sea-Land Finance*)	T-AKR 291	Rheinstahl Nordseewerke, Emden, West Germany	17 Sep 1973
REGULUS (ex-SS *Sea-Land Commerce*)	T-AKR 292	A G Weser, Bremen, West Germany	30 Mar 1973
CAPELLA (ex-SS *Sea-Land McLean*)	T-AKR 293	Rotterdamsche DD Mij NV, Rotterdam	4 Oct 1972
ANTARES (ex-SS *Sea-Land Galloway*)	T-AKR 294	A G Weser, Bremen, West Germany	27 Sep 1972

Displacement, tons: 55,355 full load
Measurement, tons: 25,389 net; 27,051-28,095 dwt
Dimensions, feet (metres): 946.2 × 105.5 × 36.8 *(288.4 × 32.1 × 11.2)*
Main machinery: 2 Foster-Wheeler boilers; 875 psi *(61.6 kg/cm^2)*; 950°F *(510°C)*; 2 GE MST-19 steam turbines; 120,000 hp *(89.5 MW)*; 2 shafts
Speed, knots: 30. **Range, miles:** 12,200 at 27 kt
Complement: 43 (as merchant ship); 24 (minimum); 15 (ROS)
Helicopters: Platform only.

Comment: All were originally built as container ships for Sea-Land Services, Port Elizabeth, NJ, but used too much fuel to be cost-effective as merchant ships. Six ships of this class were approved for acquisition in FY81 and the remaining two in FY82. The purchase price included 4,000 containers and 800 container chassis for use in container ship configuration. All eight were converted to Fast Sealift Ships, which are vehicle cargo ships. Conversion included the addition of roll-on/roll-off features. The area between the forward and after superstructures allows for a helicopter flight deck. Capacities are as follows: (sq ft) 150,016 to 166,843 ro-ro; 43,407 lift-on/lift-off; and either 44 or 46 20 ft containers. In addition to one ro-ro ramp port and starboard, twin 35 ton pedestal cranes are installed between the deckhouses and twin 50 ton cranes are installed aft. Ninety-three per cent of a US Army mechanised division can be lifted using all eight ships. Seven of the class moved nearly 9 per cent of all the cargo transported between the US and Saudi Arabia during and after the Gulf War. Six were activated for the Somalian operation in December 1992 and all have been used in various operations and exercises since then. All based in Atlantic and Gulf of Mexico ports.

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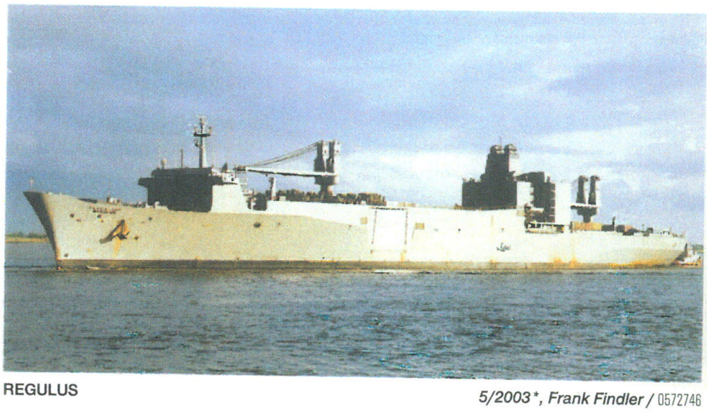


REGULUS *5/2003*, Frank Findler* / 0572746

2 GORDON CLASS: LARGE, MEDIUM-SPEED, RO-RO (LMSR) SHIPS (AKR)

Name	*No*	*Commissioned*	*F/S*
GORDON (ex-*Selandia*)	T-AKR 296	23 Aug 1996	TWWR
GILLILAND (ex-*Jutlandia*)	T-AKR 298	24 May 1997	TWWR

Measurement, tons: 55,422 grt
Dimensions, feet (metres): 956 × 105.8 × 36.3 *(291.4 × 32.2 × 11.9)*
Main machinery: 1 Burmeister & Wain 12K84EF diesel; 26,000 hp(m) *(19.11 MW)*; 2 Burmeister & Wain 9K84EF diesels; 39,000 hp(m) *(28.66 MW)*; 3 shafts (centre cp prop); bow thruster
Speed, knots: 24. **Range, miles:** 12,000 at 24 kt
Complement: 26-45 civilian; 50 Navy
Cargo capacity: 276,109 sq ft plus 45,722 sq ft deck cargo
Radars: Navigation: 2 Sperry ARPA; I-band.

Comment: Built in Denmark in 1972 and lengthened by Hyundai in 1984. Conversion contract given to Newport News Shipbuilding on 30 July 1993. Both fitted with a stern slewing ramp, side accesses and improved craneage. Conversion started for both ships on 15 October 1993.

UPDATED

GILLILAND *2/2000, A Sharma* / 0085304

7 BOB HOPE CLASS: LARGE, MEDIUM-SPEED, RO-RO (LMSR) SHIPS (AKR)

Name	*No*	*Builders*	*Launched*	*Commissioned*	*F/S*
BOB HOPE	T-AKR 300	Avondale	27 Mar 1997	18 Nov 1998	TWWR
FISHER	T-AKR 301	Avondale	21 Oct 1997	4 Aug 1999	TWWR
SEAY	T-AKR 302	Avondale	25 June 1998	30 Mar 2000	TWWR
MENDONCA	T-AKR 303	Avondale	25 May 1999	28 Feb 2001	TWWR
PILILAAU	T-AKR 304	Avondale	18 Jan 2000	24 July 2001	TWWR
BRITTIN	T-AKR 305	Avondale	21 Oct 2000	18 July 2002	TWWR
BENAVIDEZ	T-AKR 306	Avondale	11 Aug 2001	3 Aug 2003	TWWR

Displacement, tons: 61,680 full load
Dimensions, feet (metres): 948.9 × 106 × 35 *(289.1 × 32.3 × 11)*
Main machinery: 4 Colt Pielstick 10 PC4.2 V diesels; 65,160 hp(m) *(47.89 MW)*; 2 shafts; cp props
Speed, knots: 24. **Range, miles:** 12,000 at 24 kt
Complement: 26-45 civilian; up to 50 Navy
Cargo capacity: 317,510 sq ft plus 70,152 sq ft deck cargo

Comment: Contract awarded in 1993; options for additional ships exercised in 1994, 1995, 1996 and 1997. All fitted with a stern slewing ramp, side accesses and cranes for both roll-on/roll-off and lift-on/lift-off capabilities. Ramps extend to 130 ft *(40 m)*, and two twin 55 ton cranes are installed.

UPDATED

SEAY *2/2003*, A Sharma* / 0572747

5 T 5 TYPE: TANKERS (AOT/AOR)

Name	*No*	*Builders*	*Commissioned*
GUS W DARNELL	T-AOT 1121	American SB Co, Tampa, FL	11 Sep 1985
PAUL BUCK	T-AOT 1122	American SB Co, Tampa, FL	7 June 1985
SAMUEL L COBB	T-AOT 1123	American SB Co, Tampa, FL	15 Nov 1985
RICHARD G MATTHIESEN	T-AOT 1124	American SB Co, Tampa, FL	18 Feb 1986
LAWRENCE H GIANELLA	T-AOT 1125	American SB Co, Tampa, FL	22 Apr 1986

Displacement, tons: 39,624 full load
Dimensions, feet (metres): 615 × 90 × 36 *(187.5 × 27.4 × 10.8)*
Main machinery: 1 Sulzer 5RTA76 diesel; 18,400 hp(m) *(13.52 MW)* sustained; 1 shaft
Speed, knots: 16. **Range, miles:** 12,000 at 16 kt
Complement: 23 (9 officers)
Cargo capacity: 238,400 barrels of oil fuel

Comment: Built for Ocean Carriers Inc, Houston, Texas specifically for long-term time charter to the Military Sealift Command (20 years) as Ocean Transportation ships. AOT 1121 remains on long-term charter while the remainder were purchased in 2003 and are designated USNS. The last two are able to rig underway replenishment gear.

UPDATED

LAWRENCE H GIANELLA *1/2002, A Sharma* / 0530036

PREPOSITIONING PROGRAMME

Notes: (1) Military Sealift Command's Afloat Prepositioning Force (APF) improves US capabilities to deploy forces rapidly to any area of conflict. The force includes long-term chartered commercial vessels, activated Ready Reserve Force ships and government ships and includes vehicle/cargo carriers, container ships, aviation logistics ships and Large, Medium-Speed, Roll-on/roll-off (LMSR) ships. Together these ships preposition equipment and supplies for the Marine Corps, Navy, Army, Air Force and the Defense Logistics Agency. The APF comprises: the Maritime Prepositioning Force (MPF), Logistics Prepositioning Ships (LPS) and Combat Prepositioning Ships (CPS).
(2) The MPF operate in forward-deployed squadrons: Squadron One is located in the Mediterranean, Squadron Two at Diego Garcia and Squadron Three in the Western Pacific. 16 ships are loaded with equipment and supplies for the US Marine Corps.
(3) Nine LPS are loaded with US Air Force and Navy ammunition and Defense Logistics Agency Petroleum products, while two are aviation logistic ships serving as USMC intermediate maintenance facilities.
(4) The 10 CPS preposition equipment and supplies for a US Army heavy brigade and combat support/combat service support elements.

1 THEATRE SUPPORT VESSEL (HSV)

WESTPAC EXPRESS

Measurement, tons: 750 dwt
Dimensions, feet (metres): 331.4 × 87.4 × 13.8 *(101.0 × 26.65 × 4.2)*
Main machinery: 4 Caterpillar 3618 diesels; 38,620 hp *(28.8 MW)*; 4 Kamewa waterjets
Speed, knots: 40. **Range, miles:** 1,100 at 35 kt
Military lift: 550 tonnes of equipment and 970 personnel

Comment: Following trials which started in July 2001, chartered by Military Sealift Command on 31 January 2002 for three years from Austal Ships, West Australia. Aluminium construction. Employed by US Marine Corps Third Expeditionary Force (III MEF) to transport equipment and troops from Okinawa for training exercises in Yokohama, Guam and other regional destinations. The benefits include reduced dependence on and cost of airlift. The vessel will retain commercial livery and markings. Based at Okinawa.

UPDATED

WESTPAC EXPRESS *8/2001, Mitsuhiro Kadota* / 0131282

1 CONTAINER SHIP (AK)

Name	*No*	*Builders*	*Commissioned*	*F/S*
A1C WILLIAM H PITSENBARGER	T-AK 4638	Chantiers de l'Atlantique, St Nazaire	28 Nov 2001	PREPO

Displacement, tons: 31,986 full load
Dimensions, feet (metres): 621.3 × 105.6 × 37.5 *(189.3 × 32.2 × 11.4)*
Main machinery: 1 Sulzer 7RLB 66 reversible diesel; one shaft
Speed, knots: 17.5. **Range, miles:** 16,800 at 13 kt
Complement: 22
Cargo capacity: 1,670 TEU (808 under deck)

Comment: Completed in 1984. Chartered by MSC in October 2001 as LPS ship to carry Air Force munitions in Indian Ocean. Reflagged and renamed. Owned by RR and VO LCC and operated by Red River Shipping Corporation.

UPDATED

A1C WILLIAM H PITSENBARGER *6/2003*, US Navy* / 0572807

1 RO-RO CONTAINER: CARGO SHIP (AK)

Name	*No*	*Builders*	*Commissioned*	*F/S*
MERLIN	AK 323	Chantiers, France	1978	PREPO

Displacement, tons: 26,378 full load
Dimensions, feet (metres): 669.8 × 86.9 × 34.5 *(204.1 × 26.5 × 10.5)*
Main machinery: Pielstick medium speed diesel; 1 shaft
Speed, knots: 16. **Range, miles:** 23,200 at 13 kt
Complement: 19
Cargo capacity: 1,066 TEU

Comment: The ship is owned and operated by Sealift, Inc and is under charter to Military Sealift Command. Acquired in 2002, MV Merlin can carry more than 1,000 20 ft container equivalents of aviation munitions. Plans are to outfit the ship with a cocoon system in 2003. *Merlin* serves as an LPS ship.

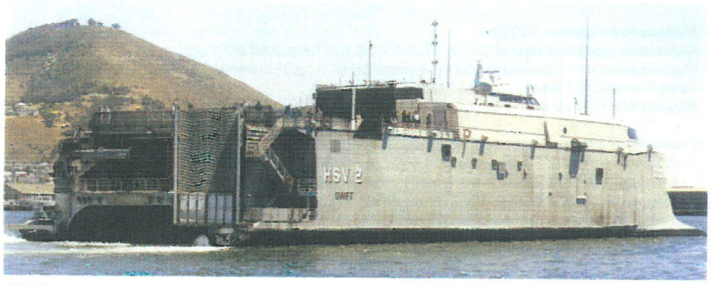
UPDATED

1 HIGH SPEED LOGISTIC SUPPORT VESSEL (HSV/MCS)

SWIFT HSV-2

Displacement, tons: 1,800
Dimensions, feet (metres): 321.6 × 85.3 × 12.1 *(98.0 × 26.0 × 3.7)*
Main machinery: 4 CAT 3618 diesels; 38,620 hp *(28.8 MW)*; 4 LIPS 150D waterjets
Speed, knots: 48 (light); 38 (full load). **Range, miles:** 2,400 at 35 kt
Military lift: 815 tonnes cargo and 350 personnel

Comment: Built as *Incat 61* (Incat Evolution 10B) of aluminium construction and leased for one year (with option to extend until 2008) by Military Sealift Command from Bollinger/Incat of Lockport, Louisiana from June 2003. The ship is to be utilised as a platform to conduct trials and exercises required by the Navy Warfare Development Command and also as an interim replacement for the Mine Countermeasures Support Ship *Inchon*. A stern ramp, loading directly astern or to the starboard quarter, is to be fitted. It will be capable of loading/unloading vehicles up to and including main battle tanks. The ramp will also be capable of launch and recovery of assault vehicles. The vessel is to be fitted with a helicopter deck capable of operating MH-60S, CH-46, UH-1 and AH-1 helicopters. A protected area for the storage and maintenance of two MH-60S helicopters will also be provided. Details are indicative and based on those of *Joint Venture*.
UPDATED



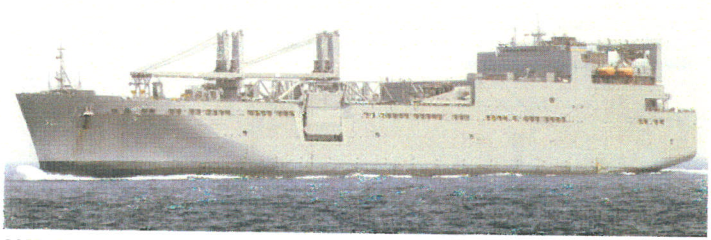
SWIFT *11/2003*, Robert Pabst* / 0572745

8 WATSON CLASS: LARGE, MEDIUM-SPEED, RO-RO (LMSR) SHIPS (AKR)

Name	*No*	*Builders*	*Launched*	*Commissioned*	*F/S*
WATSON	T-AKR 310	NASSCO	26 July 1997	23 June 1998	PREPO
SISLER	T-AKR 311	NASSCO	28 Feb 1998	1 Dec 1998	PREPO
DAHL	T-AKR 312	NASSCO	2 Oct 1998	13 July 1999	PREPO
RED CLOUD	T-AKR 313	NASSCO	7 Aug 1999	18 Jan 2000	PREPO
CHARLTON	T-AKR 314	NASSCO	11 Dec 1999	23 May 2000	PREPO
WATKINS	T-AKR 315	NASSCO	28 July 2000	5 Dec 2000	PREPO
POMEROY	T-AKR 316	NASSCO	10 Mar 2001	14 Aug 2001	PREPO
SODERMAN	T-AKR 317	NASSCO	26 Apr 2002	25 Sep 2002	PREPO

Displacement, tons: 62,968 full load
Dimensions, feet (metres): 951.4 × 106 × 35 *(290 × 32.3 × 11)*
Main machinery: 2 GE Marine LM gas turbines; 64,000 hp *(47.7 MW)*; 2 shafts; cp props
Speed, knots: 23. **Range, miles:** 12,000 at 22 kt
Complement: 26-45 civilian; up to 50 Navy
Cargo capacity: 394,673 sq ft. 13,000 tons

Comment: Contract awarded in 1993; options for additional ships exercised at one a year to 2002. All are fitted with a stern slewing ramp, side accesses and cranes for both roll-on/roll-off and lift-on/lift-off capabilities. Ramps extend to 130 ft *(40 m)*, and two twin 55 ton cranes are installed. Serve as Combat Prepositioning Ships.
UPDATED



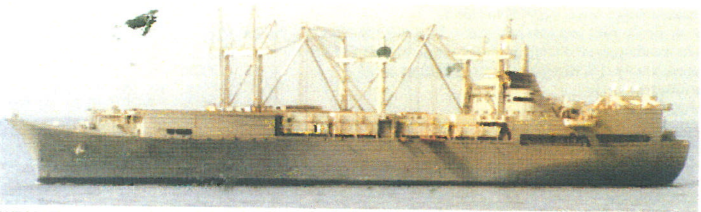
SODERMAN *5/2003*, A Sharma* / 0572811

2 T-AVB 3 CLASS: AVIATION LOGISTIC SHIPS (AVB)

Name	*No*	*Builders*	*Commissioned*	*F/S*
WRIGHT (ex-SS *Young America*)	T-AVB 3	Ingalls Shipbuilding	1970	PREPO/ROS
CURTISS (ex-SS *Great Republic*)	T-AVB 4	Ingalls Shipbuilding	1969	PREPO/ROS

Displacement, tons: 23,872 full load
Measurement, tons: 11,757 gross; 6,850 net; 15,946 dwt
Dimensions, feet (metres): 602 × 90.2 × 29.8 *(183.5 × 27.5 × 9.1)*
Main machinery: 2 Combustion Engineering boilers; 2 GE turbines; 30,000 hp *(22.4 MW)*; 1 shaft
Speed, knots: 23. **Range, miles:** 9,000 at 22 kt
Complement: 38 crew and 1 Aircraft Maintenance Detachment totalling 363 men

Comment: To reinforce the capabilities of the Maritime Prepositioning Ship programme, conversion of two ro-ro ships into maintenance aviation support ships was approved in FY85 and FY86. *Wright* was completed 14 May 1986, *Curtiss* 18 August 1987. Both conversions took place at Todd Shipyards, Galveston, Texas. Each ship has side ports and three decks aft of the bridge superstructure and has the capability to load the vans and equipment of a Marine Aviation Intermediate Maintenance Activity. The ships' mission is to service aircraft from an afloat platform. They can then revert to a standard sealift role if required. Maritime Administration hull design is C5-S-78a. These Logistics Prepositioning Ships are operated by American Overseas Marine and maintained in a reduced operating status.
UPDATED



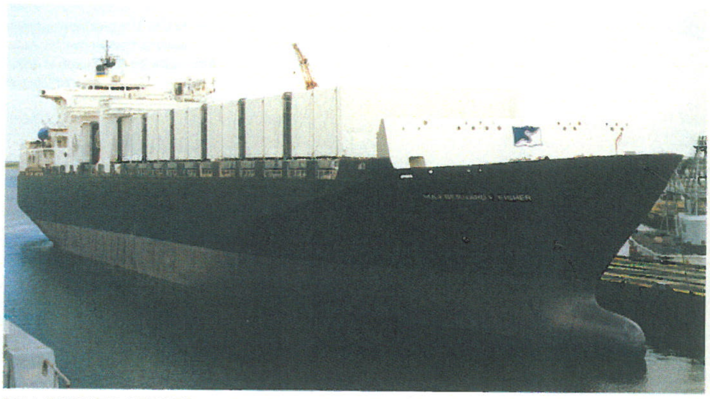
WRIGHT *4/2003*, A Sharma* / 0572752

1 CONTAINER SHIP (AK)

Name	*No*	*Builders*	*Commissioned*	*F/S*
MAJ BERNARD F FISHER (ex-*Sea Fox*)	T-AK 4396	Odense	1985	PREPO

Displacement, tons: 48,012 full load
Dimensions, feet (metres): 652.2 × 105.6 × 36.1 *(198.1 × 32.2 × 11)*
Main machinery: 1 BMW diesel; 1 shaft
Speed, knots: 19
Complement: 24
Cargo capacity: 1,466 TEUs with 10,227 sq ft garage space for ro-ro cargo

Comment: An LPS ship owned and operated by Sealift, Inc. Acquired in 1998, it is used to preposition US Air Force war stocks at sea.
UPDATED



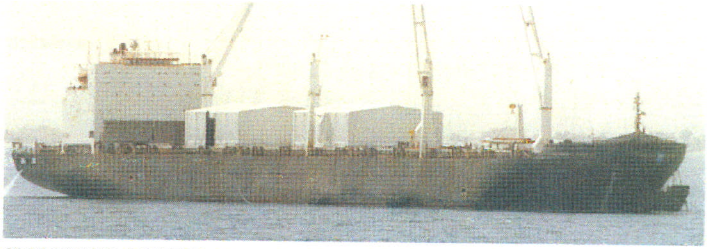
MAJ BERNARD F FISHER *6/1999, US Navy* / 0084185

2 CONTAINER SHIPS (AK)

Name	*No*	*Builders*	*Commissioned*	*F/S*
LTC JOHN U D PAGE (ex-*Newark Bay*)	T-AK 4543	Daewoo Shipbuilding	1985	PREPO
SSGT EDWARD A CARTER (ex-*OOCL Innovation*)	T-AK 4544	Daewoo Shipbuilding	1984	PREPO

Displacement, tons: 81,284 full load
Dimensions, feet (metres): 950 × 106 × 38 *(289.5 × 32.3 × 11.6)*
Main machinery: 1 Sulzer RLB 90 diesel; 1 shaft
Speed, knots: 18
Complement: 20
Cargo capacity: 2,500 TEU

Comment: *LTC John U D Page* delivered to MSC in February 2001 and *SSGT Edward A Carter* in June 2001. Both operated by Maersk Sealand and are CPS ships for army prepositioning in the Indian Ocean.
UPDATED



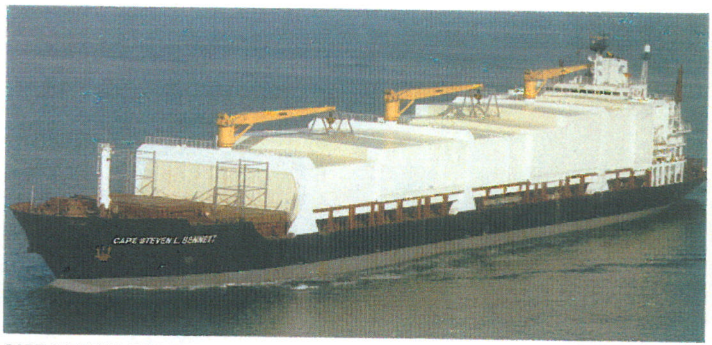
SSGT EDWARD A CARTER *2/2003*, A Sharma* / 0572750

1 CONTAINER SHIP (AK)

Name	*No*	*Builders*	*Commissioned*	*F/S*
CAPT STEVEN L BENNETT (ex-*Sea Pride*)	T-AK 4296	Samsung Shipbuilding	1984	PREPO

Displacement, tons: 53,727.26 full load
Dimensions, feet (metres): 687 × 99.7 × 49.9 *(209.4 × 30.4 × 15.2)*
Main machinery: 1 diesel; 1 shaft
Speed, knots: 16.5
Complement: 21 civilian
Cargo capacity: 520 TEU (on deck within cocoons); 1,006 TEU (under deck); 422 TEU (reefer)

Comment: The ship is owned and operated by Sealift Inc, under charter to Military Sealift Command. When fully loaded, *Bennett* carries over 1,500 20 ft containers of various aviation munitions intended to resupply forward-deployed fighter and attack squadrons. The ship is fitted with an extensive cocoon system enabling it to maintain deck-loaded munitions in an environmentally controlled atmosphere. While lightweight and easy to maintain, the fabric cocoon system is able to withstand gusts of up to 90 kt. *Bennett* is an LPS ship.
VERIFIED



CAPT STEVEN L BENNETT *6/1999, US Navy* / 0016575

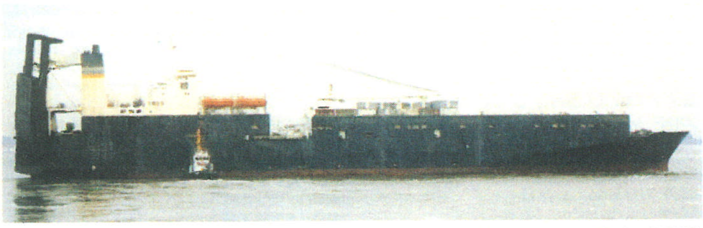
1 RO-RO CONTAINER: CARGO SHIP (AKR)

Name	*No*	*Builders*	*Commissioned*	*F/S*
1st LT HARRY L MARTIN (ex-*Tarago*)	T-AK 3015	Tarago Shipyard	20 Apr 2000	PREPO

Displacement, tons: 47,777 full load
Dimensions, feet (metres): 754.3 × 106 × 36.1 *(229.9 × 32.3 × 11)*
Main machinery: 1 MAN K7-SZ-90/160 diesel; 25,690 hp(m) *(18.88 MW)*; 1 shaft
Speed, knots: 21. **Range, miles:** 17,000 at 17 kt
Complement: 23 plus 100 marines
Cargo capacity: 191,000 sq ft. 767 TEU

Comment: Acquired in February 1997 for conversion at Atlantic Drydock, Jacksonville. Assigned to MPSRON One in the Mediterranean. Carries USMC expeditionary airfield, fleet hospital package and construction equipment.

UPDATED



1st LT HARRY L MARTIN *7/2003*, Frank Findler* / 0572751

1 RO-RO CONTAINER: CARGO SHIP (AKR)

Name	*No*	*Builders*	*Commissioned*	*F/S*
L/CPL ROY M WHEAT (ex-*Bazaliya*)	T-AK 3016	Bender Shipbuilding	Oct 2001	PREPO

Displacement, tons: 50,101 full load
Dimensions, feet (metres): 863.8 × 98.4 × 34.8 *(263.3 × 30 × 10.6)*
Main machinery: 2 gas turbines; 47,020 hp(m) *(34.56 MW)*; 2 shafts
Speed, knots: 22. **Range, miles:** 12,000 at 22 kt
Complement: 28 plus 100 marines
Cargo capacity: 127,000 sq ft. 960 TEU

Comment: Acquired in March 1997 for conversion for Maritime Prespositioning Force by Bender Shipbuilding, Mobile. The ship has been lengthened by 117 ft and joined MSPSRON Three on 7 October 2003. Carries USMC expeditionary airfield, fleet hospital package and construction equipment.

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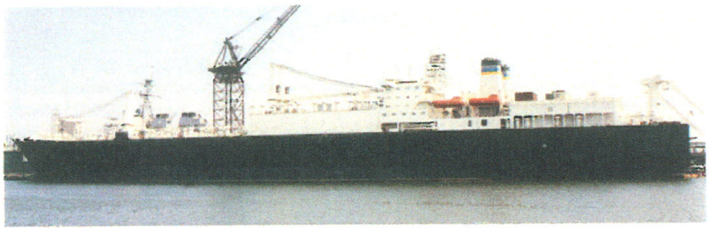

L/CPL ROY M WHEAT *9/2002, Winter & Findler* / 0529989

1 RO-RO CONTAINER: CARGO SHIP (AKR)

Name	*No*	*Builders*	*Commissioned*	*F/S*
GYSGT FRED W STOCKHAM (ex-*Soderman*)	T-AK 3017	National Steel and Shipbuilding	July 2001	PREPO

Displacement, tons: 55,123 full load
Dimensions, feet (metres): 907 × 106 × 36 *(276.4 × 32.2 × 10.9)*
Main machinery: 1 Burmeister & Wain 12L90 GFCA diesel; 46,653 hp(m) *(34.29 MW)*; 1 shaft; bow and stern thrusters
Speed, knots: 24. **Range, miles:** 12,000 at 24 kt
Complement: 28 crew, 12 cargo maintenance, 83 opp
Cargo capacity: 94,337 sq ft. 850 TEU

Comment: Ex-USNS *Soderman* joined the Maritime Prepositioning Force in July 2001 and is assigned to MPSRON Two. Carries USMC expeditionary airfield, fleet hospital package and construction equipment.

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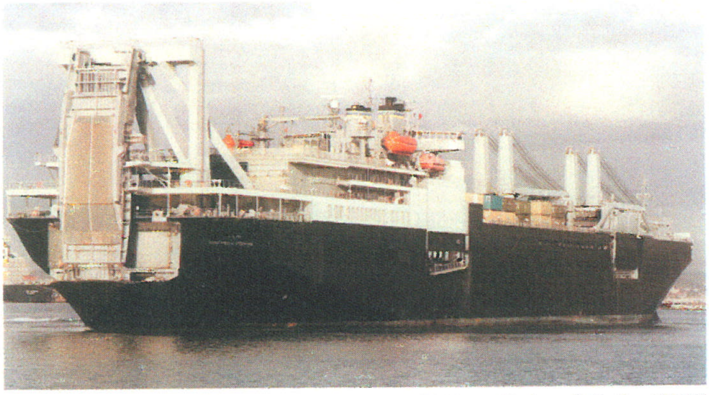

GYSGT FRED W STOCKHAM *8/2001, van Ginderen Collection* / 0131276

5 CPL LOUIS J HAUGE, JR CLASS: VEHICLE CARGO SHIPS (AKRH)

Name	*No*	*Builders*	*Commissioned*	*F/S*
CPL LOUIS J HAUGE, JR (ex-MV *Estelle Maersk*)	T-AK 3000	Odense Staalskibsvaerft A/S, Lindo	Oct 1979	Sqn 2
PFC WILLIAM B BAUGH (ex-MV *Eleo Maersk*)	T-AK 3001	Odense Staalskibsvaerft A/S, Lindo	Apr 1979	Sqn 2
PFC JAMES ANDERSON, JR (ex-MV *Emma Maersk*)	T-AK 3002	Odense Staalskibsvaerft A/S, Lindo	July 1979	Sqn 2
1st LT ALEX BONNYMAN (ex-MV *Emilie Maersk*)	T-AK 3003	Odense Staalskibsvaerft A/S, Lindo	Jan 1980	Sqn 2
PVT FRANKLIN J PHILLIPS *(ex-Pvt Harry Fisher,* ex-MV *Evelyn Maersk*)	T-AK 3004	Odense Staalskibsvaerft A/S, Lindo	Apr 1980	Sqn 2

Displacement, tons: 46,552 full load
Dimensions, feet (metres): 755 × 90 × 37.1 *(230 × 27.4 × 11.3)*
Main machinery: 1 Sulzer 7RND76M diesel; 16,800 hp(m) *(12.35 MW)*; 1 shaft; bow thruster
Speed, knots: 17.5. **Range, miles:** 10,800 at 16 kt
Complement: 27 plus 10 technicians
Cargo capacity: Containers, 361; ro-ro, 121,595 sq ft; JP-5 bbls, 17,128; DF-2 bbls, 10,642; Mogas bbls, 3,865; stable water, 2,022; cranes, 3 twin 30 ton; 92,831 cu ft breakbulk
Helicopters: Platform only.

Comment: Converted from five Maersk Line ships by Bethlehem Steel, Sparrow Point, MD. Conversion work included the addition of 157 ft *(47.9 m)* amidships. All assigned to MPSRON Two and operated by Maersk Line Ltd.

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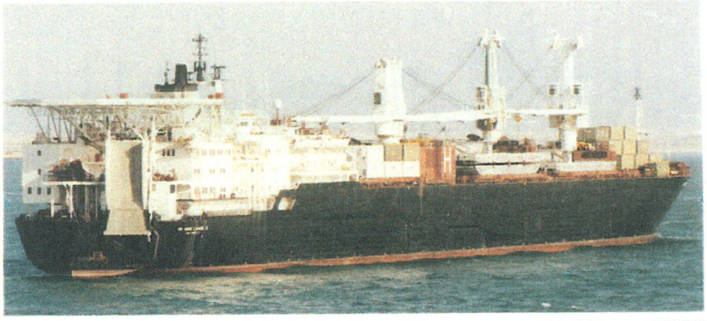

CPL LOUIS J HAUGE JR *3/1998, A Sharma* / 0053410

3 SGT MATEJ KOCAK CLASS: VEHICLE CARGO SHIPS (AKRH)

Name	*No*	*Builders*	*Commissioned*	*F/S*
SGT MATEJ KOCAK (ex-SS *John B Waterman*)	T-AK 3005	Pennsylvania SB Co, Chester, PA	14 Mar 1981	Sqn 1
PFC EUGENE A OBREGON (ex-SS *Thomas Heywood*)	T-AK 3006	Pennsylvania SB Co, Chester, PA	1 Nov 1982	Sqn 1
MAJ STEPHEN W PLESS (ex-SS *Charles Carroll*)	T-AK 3007	General Dynamics Corp, Quincy, MA	14 Mar 1983	Sqn 1

Displacement, tons: 48,754 full load
Dimensions, feet (metres): 821 × 105.6 × 32.3 *(250.2 × 32.2 × 9.8)*
Main machinery: 2 boilers; 2 GE turbines; 30,000 hp *(22.4 MW)*; 1 shaft
Speed, knots: 20. **Range, miles:** 13,000 at 20 kt
Complement: 29 plus 10 technicians
Cargo capacity: Containers, 532; ro-ro, 152,236 sq ft; JP-5 bbls, 20,290; DF-2 bbls, 12,355; Mogas bbls, 3,717; stable water, 2,189; cranes, 2 twin 50 ton and 1—30 ton gantry
Helicopters: Platform only.

Comment: Converted from three Waterman Line ships by National Steel and Shipbuilding, San Diego. Delivery dates T-AK 3005, 1 October 1984; T-AK 3006, 16 January 1985; T-AK 3007, 15 May 1985. Conversion work included the addition of 157 ft *(47.9 m)* amidships. All assigned to MSPSRON One and operated by Waterman SS Corp.

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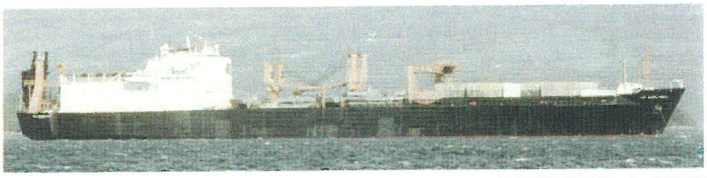


SGT MATEJ KOJAK *10/2002, H M Steele* / 0530097

5 2nd LT JOHN P BOBO CLASS: VEHICLE CARGO SHIPS (AKRH)

Name	*No*	*Builders*	*Commissioned*	*F/S*
2nd LT JOHN P BOBO	T-AK 3008	General Dynamics, Quincy	14 Feb 1985	Sqn 1
PFC DEWAYNE T WILLIAMS	T-AK 3009	General Dynamics, Quincy	6 June 1985	Sqn 3
1st LT BALDOMERO LOPEZ	T-AK 3010	General Dynamics, Quincy	20 Nov 1985	Sqn 3
1st LT JACK LUMMUS	T-AK 3011	General Dynamics, Quincy	6 Mar 1986	Sqn 3
SGT WILLIAM R BUTTON	T-AK 3012	General Dynamics, Quincy	27 May 1986	Sqn 3

Displacement, tons: 44,330 full load
Dimensions, feet (metres): 675.2 × 105.5 × 29.6 *(205.8 × 32.2 × 9)*
Main machinery: 2 Stork-Wärtsilä Werkspoor 16TM410 diesels; 27,000 hp(m) *(19.84 MW)* sustained; 1 shaft; bow thruster; 1,000 hp *(746 kW)*
Speed, knots: 18. **Range, miles:** 12,840 at 18 kt
Complement: 30 plus 10 technicians
Cargo capacity: Containers, 530; ro-ro, 152,185 sq ft; JP-5 bbls, 20,776; DF-2 bbls, 13,334; Mogas bbls, 4,880; stable water, 2,357; cranes, 1 single and 2 twin 39 ton
Helicopters: Platform only.

Comment: Built for MPS operations. Owned and operated by American Overseas Marine. T-AK 3008 assigned to MPSRON One and the remainder to MPSRON Three.

UPDATED

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit

READY RESERVE FORCE (RRF)

Notes: (1) The Ready Reserve Force was created in 1976, due to a shrinking US-flagged commercial fleet, to support military sea transportation needs. Composed of merchant ships that are no longer commercially useful, the RRF is designed to be made available quickly for military sealift operations.
(2) On 1 January 2004 the RRF consisted of 68 ships, including Ro-ro, breakbulk, auxiliary crane, heavy lift barge carriers, tankers and troop ships. These are maintained in various stages of readiness and able to get underway in four, five, 10 or 20 days. They are located in various ports along the US East, West and Gulf Coasts and in Japan.
(3) The Department of Transportation's Maritime Administration (MARAD) is responsible for the maintenance and administration of the ships when they are not operating. Military Sealift Command assumes operational control once the ships are activated. 31 Ro-Ros supported Operation Iraqi Freedom in 2003. Several of the RRF Ro-ros have also been used to support the at-sea prepositioning requirements of the Army.
(4) RRF ships have red, white and blue funnel stripes.

9 PRODUCT TANKERS (AOT)

NODAWAY T-AOG 78
ALATNA T-AOG 81
CHATTAHOOCHEE T-AOG 82
POTOMAC T-AOT 181
MISSION BUENAVENTURA T-AOT 1012
MISSION CAPISTRANO T-AOT 5005
MOUNT WASHINGTON T-AOT 5076
CHESAPEAKE T-AOT 5084
PETERSBURG T-AOT 9109

Comment: *Chesapeake* and *Petersburg* are operational as LPS ships. ***VERIFIED***

POTOMAC *6/2000, Bob Fildes /* 0106835

10 KEYSTONE STATE CLASS: AUXILIARY CRANE SHIPS (AK)

Name	*No*	*Builders*	*Conversion Commissioned*
KEYSTONE STATE (ex-SS *President Harrison*)	T-ACS 1	Defoe SB Co, Bay City	1984
GEM STATE (ex-SS *President Monroe*)	T-ACS 2	Defoe SB Co, Bay City	1985
GRAND CANYON STATE (ex-SS *President Polk*)	T-ACS 3	Dillingham SR, Portland	1986
GOPHER STATE (ex-*Export Leader*)	T-ACS 4	Norshipco, Norfolk	Oct 1987
FLICKERTAIL STATE (ex-*Export Lightning*)	T-ACS 5	Norshipco, Norfolk	Dec 1987
CORNHUSKER STATE (ex-*Staghound*)	T-ACS 6	Norshipco, Norfolk	Mar 1988
DIAMOND STATE (ex-*President Truman*)	T-ACS 7	Tampa SY	Jan 1989
EQUALITY STATE (ex-*American Banker*)	T-ACS 8	Tampa SY	May 1989
GREEN MOUNTAIN STATE (ex-*American Altair*)	T-ACS 9	Norshipco, Norfolk	Sep 1990
BEAVER STATE (ex-*American Draco*)	T-ACS 10	Kreith Ship Repair, New Orleans	4 May 1997

Displacement, tons: 31,500 full load
Dimensions, feet (metres): 668.6 × 76.1 × 33.5 *(203.8 × 23.2 × 10.2)*
Main machinery: 2 boilers; 2 GE turbines; 19,250 hp *(14.4 MW)*; 1 shaft
Speed, knots: 20. **Range, miles:** 13,000 at 20 kt
Complement: 89
Cargo capacity: 300+ standard containers

Comment: Auxiliary crane ships are container ships to which have been added up to three twin boom pedestal cranes which will lift containerised or other cargo from itself or adjacent vessels and deposit it on a pier or into lighterage. Since a significant portion of the US merchant fleet is composed of non-self-sustaining container ships lacking integral cranes, thus needing a fully developed port to unload, a requirement exists for crane ships that can unload other ships in areas of the world which have very simple, damaged or no developed port facilities. There are dimensional differences between some of the class. Five of the ships were deployed to the Gulf in 1990-91 but the excellent Saudi harbour facilities meant that dockside cranes were available to unload cargoes, so their particular talents were not required other than as standard cargo ships. T-ACS 4 is operational as a CPS ship at Diego Garcia. ***UPDATED***

7 BREAK BULK SHIPS (AK/AKR/AE)

CAPE NOME T-AK 1014
CAPE GIRARDEAU T-AK 2039
CAPE JACOB T-AK 5029
CAPE JOHN T-AK 5022
CAPE GIBSON T-AK 5051
CAPE JOHNSON T-AK 5075
CAPE JUBY T-AK 5077

Comment: *Cape Jacob*, *Cape John* and *Cape Johnson* are operational as LPS ships. ***UPDATED***

CAPE JACOB *8/2002*, Royal Australian Navy /* 0572796

31 RO-RO SHIPS (AKR)

COMET T-AKR 7
METEOR T-AKR 9
CAPE ISLAND (ex-*Mercury*) T-AKR 10
CAPE INTREPID T-AKR 11
CAPE TEXAS (ex-*Lyra*) T-AKR 112
CAPE TAYLOR (ex-*Cygnus*) T-AKR 113
ADM WM H CALLAGHAN T-AKR 1001
CAPE ORLANDO (ex-*American Eagle*) T-AKR 2044
CAPE DUCATO T-AKR 5051
CAPE DOUGLAS T-AKR 5052
CAPE DOMINGO T-AKR 5053
CAPE DECISION T-AKR 5054
CAPE DIAMOND T-AKR 5055
CAPE ISABEL T-AKR 5062
CAPE HUDSON T-AKR 5066
CAPE HENRY T-AKR 5067
CAPE HORN T-AKR 5068
CAPE EDMONT T-AKR 5069
CAPE INSCRIPTION T-AKR 5076
CAPE LAMBERT T-AKR 5077
CAPE LOBOS T-AKR 5078
CAPE KNOX T-AKR 5082
CAPE KENNEDY T-AKR 5083
CAPE VINCENT (ex-*Taabo Italia*) T-AKR 9666
CAPE RISE (ex-*Saudi Riyadh*) T-AKR 9678
CAPE RAY (ex-*Saudi Makkah*) T-AKR 9679
CAPE VICTORY (ex-*Merzario Britania*) T-AKR 9701
CAPE TRINITY (ex-*Santos*) T-AKR 9711
CAPE RACE (ex-*G&C Admiral*) T-AKR 9960
CAPE WASHINGTON (ex-*Hual Transporter*) T-AKR 9961
CAPE WRATH (ex-*Hual Trader*) T-AKR 9962

UPDATED

CAPE EDMONT *2/2003* /* 0572765

9 MISCELLANEOUS HEAVY LIFT AND TROOP SHIPS (AK/AP/AKR)

Lash ships
CAPE FEAR T-AK 5061
CAPE FLATTERY T-AK 5070
CAPE FLORIDA T-AK 5071
CAPE FAREWELL T-AK 5073

Troopships
EMPIRE STATE T-AP 1001
GOLDEN BEAR T-AP 039

Heavy lift ships
CAPE MAY T-AKR 5063
CAPE MENDOCINO T-AKR 5064
CAPE MOHICAN T-AKR 5065

UPDATED

EMPIRE STATE *6/2003*, Giorgio Ghiglione /* 0572764

GOPHER STATE *7/2003*, W Sartori /* 0572766

COAST GUARD

Headquarters Appointments

Commandant:
Admiral Thomas Collins
Vice Commandant:
Vice Admiral Thomas J Barrett
Commander, Atlantic Area:
Vice Admiral James D Hull
Commander, Pacific Area:
Vice Admiral Terry M Cross

Establishment

The United States Coast Guard was established by an Act of Congress approved 28 January 1915, which consolidated the Revenue Cutter Service (founded in 1790) and the Life Saving Service (founded in 1848). The act of establishment stated the Coast Guard "shall be a military service and a branch of the armed forces of the USA at all times. The Coast Guard shall be a service in the Treasury Department except when operating as a service in the Navy".

Congress further legislated that in time of national emergency or when the President so directs, the Coast Guard operates as a part of the Navy. The Coast Guard did operate as a part of the Navy during the First and Second World Wars.

The Lighthouse Service (founded in 1789) was transferred to the Coast Guard on 1 July 1939 and the Bureau of Navigation and Steamboat Inspection on 28 February 1942.

The Coast Guard was transferred from the Department of Transportation to the Department of Homeland Security on 1 March 2003.

Missions

The Coast Guard has five strategic aims:

Safety: Prevent deaths, injuries, and property damage associated with maritime transportation, fishing and recreational boating.

National Defense: Defend the nation as one of the five US Armed Services. Enhance regional stability in support of the National Security Strategy specifically maritime homeland security.

Maritime Security: Protect maritime borders from all intrusions by (a) halting the flow of illegal drugs, aliens, and contraband into the United States through maritime routes; (b) preventing illegal fishing; and (c) suppressing violations of federal law in the maritime arena.

Mobility: Facilitate maritime commerce and eliminate interruptions and impediments to the economical movement of goods and people, while maximizing recreational access and enjoyment of the water.

Protection of Natural Resources: Prevent environmental damage and natural resource degradation associated with maritime transportation, fishing, and recreational boating.

Personnel

2004: 6,054 officers, 1,445 warrant officers, 30,977 enlisted, 10,700 reserves

Deepwater Programme

The contract for the USCG modernisation programme, known as 'Deepwater', was awarded in June 2002 to Integrated Coast Guard Systems (ICGS), a partnership of Lockheed Martin and Northrop Grumman. Northrop Grumman Ship Systems will conduct the design and build of up to 91 surface vessels to replace Cutters and Patrol Forces. Lockheed Martin is responsible for the C4ISR and system integration aspects of the programme and for aircraft procurement.

Cutter Strength

All Coast Guard vessels over 65 ft in length and that have adequate crew accommodation are referred to as 'cutters'. All names are preceded by USCG. The first two digits of the hull number for all Coast Guard vessels under 100 ft in length indicates the approximate length overall.

Approximately 2,000 standard and non-standard boats are in service ranging in size from 11 ft skiffs to 55 ft aids-to-navigation craft.

Category/Classification		*Active*	*Building (Projected)*
Cutters			
WHEC	High Endurance Cutters	12	–
WMEC	Medium Endurance Cutters	30	–
Icebreakers			
WAGB	Icebreakers	4	–
WTGB	Icebreaking Tugs	9	–
Patrol Forces			
WPB	Patrol Craft	91	–
Training Cutters			
WIX	Training Cutters	2	–
Buoy Tenders			
WLB	Buoy Tenders, Seagoing	17	–
WLM	Buoy Tenders, Coastal	14	–
WLI	Buoy Tenders, Inland	5	–
WLR	Buoy Tenders, River	18	–
Construction Tenders			
WLIC	Construction Tenders, Inland	13	–
Harbour Tugs			
WYTL	Harbour Tugs, Small	11	–

DELETIONS

Medium Endurance Cutters

2001	*Durable* (to Colombia), *Courageous* (to Sri Lanka)

Patrol Forces

2001	*Point Estero* and *Point Sal* (to Colombia), *Point Stuart* (to El Salvador), *Point Hannon* (to Panama), *Point Chico* and *Point Bridge* (to Costa Rica), *Point Highland* (to Trinidad), *Point Doran* (to Philippines), *Point Spencer* (to Dominican Republic), *Point Lobos* and *Point Monroe* (to NOAA)
2002	*Point Brower* (to Azerbaijan)

Tenders and Tugs

2001	*Buttonwood* (to Dominican Republic), *Sweetbrier* and *Woodrush* (to Ghana)
2002	*Sweetgum* (to Panama), *Madrona* (to El Salvador), *Cowslip* and *Sedge* (to Nigeria), *White Sumac*
2003	*Bramble*, *Firebush* and *Sassafras* (both to Nigeria)
2004	*Sundew*

HIGH ENDURANCE CUTTERS

12 HAMILTON and HERO CLASSES (PSOH/WHEC)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*	*Home Port*
HAMILTON	WHEC 715	Avondale Shipyards	Jan 1965	18 Dec 1965	20 Feb 1967	PA	San Diego, CA
DALLAS	WHEC 716	Avondale Shipyards	7 Feb 1966	1 Oct 1966	1 Oct 1967	AA	Charleston, SC
MELLON	WHEC 717	Avondale Shipyards	25 July 1966	11 Feb 1967	22 Dec 1967	PA	Seattle, WA
CHASE	WHEC 718	Avondale Shipyards	27 Oct 1966	20 May 1967	1 Mar 1968	PA	San Diego, CA
BOUTWELL	WHEC 719	Avondale Shipyards	5 Dec 1966	17 June 1967	14 June 1968	PA	Alameda, CA
SHERMAN	WHEC 720	Avondale Shipyards	23 Jan 1967	23 Sep 1967	23 Aug 1968	PA	Alameda, CA
GALLATIN	WHEC 721	Avondale Shipyards	27 Feb 1967	18 Nov 1967	20 Dec 1968	AA	Charleston, SC
MORGENTHAU	WHEC 722	Avondale Shipyards	17 July 1967	10 Feb 1968	14 Feb 1969	PA	Alameda, CA
RUSH	WHEC 723	Avondale Shipyards	23 Oct 1967	16 Nov 1968	3 July 1969	PA	Honolulu, HI
MUNRO	WHEC 724	Avondale Shipyards	18 Feb 1970	5 Dec 1970	10 Sep 1971	PA	Alameda, CA
JARVIS	WHEC 725	Avondale Shipyards	9 Sep 1970	24 Apr 1971	30 Dec 1971	PA	Honolulu, HI
MIDGETT	WHEC 726	Avondale Shipyards	5 Apr 1971	4 Sep 1971	17 Mar 1972	PA	Seattle, WA

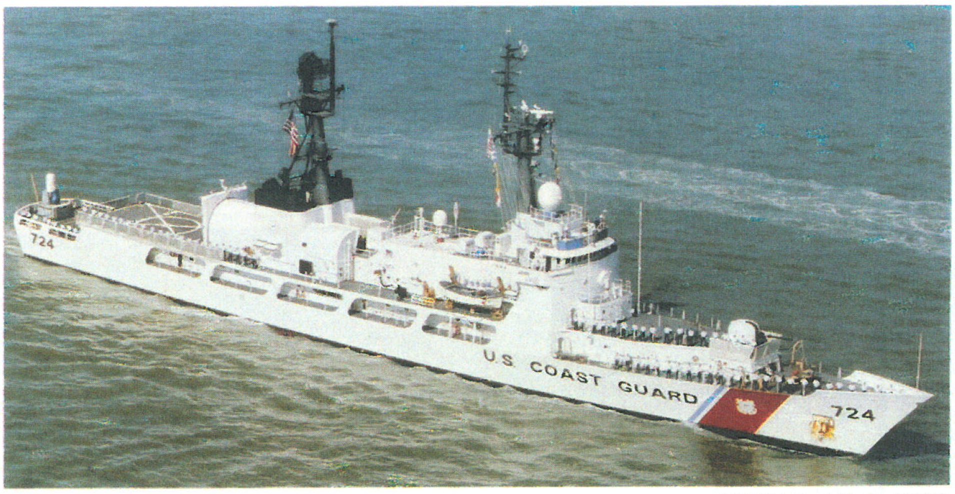
Displacement, tons: 3,300 full load
Dimensions, feet (metres): 378 × 42.8 × 20 *(115.2 × 13.1 × 6.1)*
Flight deck, feet (metres): 88 × 40 *(26.8 × 12.2)*
Main machinery: CODOG; 2 Pratt & Whitney FT4A-6 gas turbines; 36,000 hp *(26.86 MW)*; 2 Fairbanks-Morse 38TD8-1/8-12 diesels; 7,000 hp *(5.22 MW)* sustained; 2 shafts; cp props; retractable bow propulsor; 350 hp *(261 kW)*
Speed, knots: 29. **Range, miles:** 9,600 at 15 kt
Complement: 167 (19 officers)

Guns: 1 OTO Melara 3 in *(76 mm)*/62 Mk 75 Compact; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg.
2 Boeing 25 mm/87 Mk 38 Bushmaster.
1 GE/GD 20 mm Vulcan Phalanx 6-barrelled Mk 15; 3,000 rds/min combined to 1.5 km. 4—12.7 mm MGs.
Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled fixed Mk 36; IR flares and chaff.
ESM: WLR-1C, WLR-3; intercept.
Combat data systems: SCCS 378 includes OTCIXS satellite link.
Weapons control: Mk 92 Mod 1 GFCS.
Radars: Air search: Lockheed SPS-40B; B-band.
Surface search: Hughes/Furuno SPS-73; E/F- and I-bands.
Fire control: Sperry Mk 92; I/J-band.
Tacan: URN 25.

Helicopters: 1 HH-65A or 1 HH-60J or 1 MH-68A.

Programmes: In the Autumn of 1977 *Gallatin* and *Morgenthau* were the first of the Coast Guard ships to have women assigned as permanent members of the crew.

Modernisation: FRAM programme for all 12 ships in this class from October 1985 to October 1992. Work included standardising the engineering plants, improving the clutching systems, replacing SPS-29 air search radar with SPS-40 radar and replacing the Mk 56 fire-control system and 5 in/38 gun mount with the Mk 92 system and a single 76 mm OTO Melara Compact gun. In addition Harpoon and Phalanx CIWS fitted to five of the class by 1992 and CIWS to all by late 1993. The flight deck and other aircraft facilities upgraded to handle a Jay Hawk helicopter including a telescopic hangar. URN 25 Tacan added along with the SQR-4 and SQR-17 sonobuoy receiving set and passive acoustic analysis systems. SRBOC chaff launchers were also fitted but not improved ESM which has been shelved. All missiles, torpedo tubes, sonar and ASW equipment removed in 1993-94. 25 mm Mk 38 guns replaced the 20 mm Mk 67. Shipboard Command and Control System (SCCS) fitted to all of the class by 1996. Surface search radar replaced 1997-99.



MUNRO *10/2003*, Frank Findler* / 0572763

Structure: These ships have clipper bows, twin funnels enclosing a helicopter hangar, helicopter platform aft. All are fitted with elaborate communications equipment. Superstructure is largely of aluminium construction. Bridge control of manoeuvring is by aircraft-type joystick rather than wheel.

Operational: Ten of the class are based in the Pacific, leaving only two on the East Coast. The removal of SSMs and all ASW equipment sensibly refocuses on Coast Guard roles.

UPDATED

0 + 1 (7) NATIONAL SECURITY CUTTERS (PSOH/WHEC)

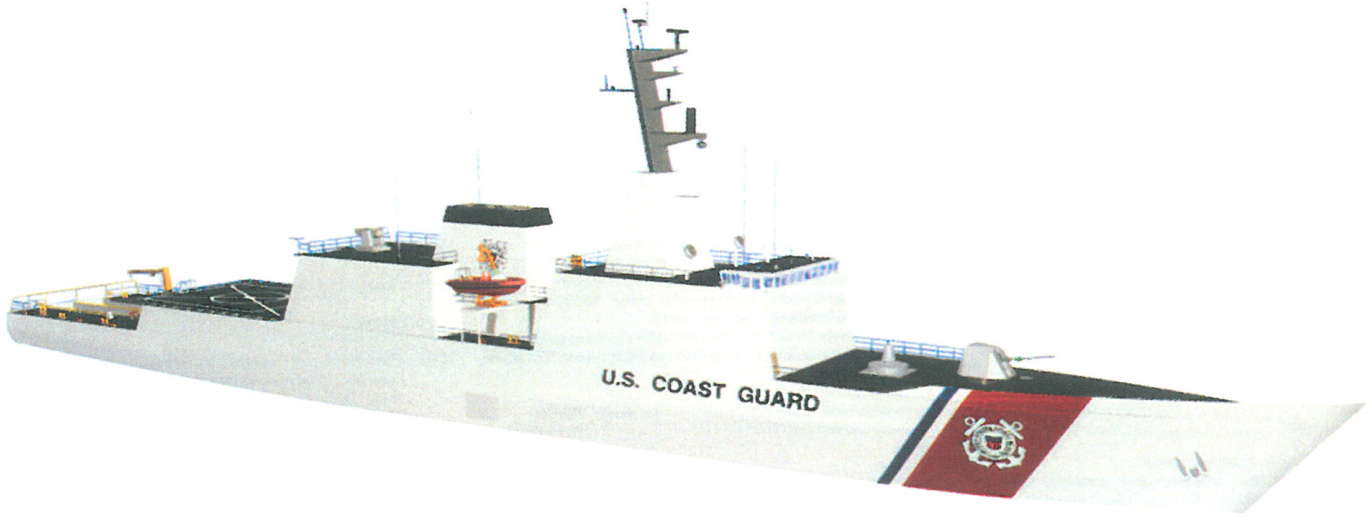
Displacement, tons: 3,086 standard; 3,956 full load
Dimensions, feet (metres): 421 × 54.2 × 21.0 *(128.3 × 16.5 × 6.4)*
Main machinery: CODAG; 1 GE LM2500 gas turbine; 29,500 hp *(22.0 MW)*; 2 MTU20V 1163 diesels; 19,310 hp *(14.4 MW)*; bow thruster; 2 shafts; cp props
Speed, knots: 29. **Range, miles:** 12,000 at 9 kt
Complement: 126 (19 officers)

Guns: 1 Bofors 57 mm/70 Mk 3; 220 rds/min to 17 km *(9.3 n miles)*; weight of shell 2.4 kg.
1 General Dynamics 20 mm Phalanx Mk 15 CIWS. 4—12.7 mm MGs.

Countermeasures: Decoys: 6 Mk 53.
ESM/ECM: SLQ 32.
Combat data systems: To be announced.
Radars: Surface search: TRS 3D/16; E/F-band.
Navigation: SPS 73; I-band.
Fire control: SPQ-9B; I/J-band.
Helicopters: 1 MCH and two Eagle Eye VUAV or 2 MCH.

Programmes: Contracts awarded to Northrop Grumman Ship Systems on 2 April 2003 for the design and long lead material procurement of the first of a class of eight National Security Cutters (NSC) to replace the High Endurance Cutters. Lockheed Martin providing command/control/communications and intelligence integration and hardware. Construction is to start in mid-2004 for delivery in late 2006 and entry into service in 2007.
Structure: Can carry up to 11 m interceptor craft; stern ramps for rapid launch and recovery. Two helicopter hangars.
Operational: Although designed to deploy 230 days per year, deployments are likely to be of the order of 185 days away from homeport through an augmented crew concept.

NEW ENTRY



NATIONAL SECURITY CUTTER

2/2004, USCG* / 0573699

MEDIUM ENDURANCE CUTTERS

Notes: As part of the 'Deepwater' modernisation programme, it is planned to replace the Medium Endurance Cutters with up to 25 Offshore Patrol Cutters (OPC). These are likely to be of the order of 100 m long. Construction of the first of class is expected to start in 2009 for entry into service in 2012.

13 FAMOUS CUTTER CLASS (PSOH/WMEC)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*F/S*	*Home Port*
BEAR	WMEC 901	Tacoma Boatbuilding Co	23 Aug 1979	25 Sep 1980	4 Feb 1983	AA	Portsmouth, VA
TAMPA	WMEC 902	Tacoma Boatbuilding Co	3 Apr 1980	19 Mar 1981	16 Mar 1984	AA	Portsmouth, VA
HARRIET LANE	WMEC 903	Tacoma Boatbuilding Co	15 Oct 1980	6 Feb 1982	20 Sep 1984	AA	Norfolk, VA
NORTHLAND	WMEC 904	Tacoma Boatbuilding Co	9 Apr 1981	7 May 1982	17 Dec 1984	AA	Norfolk, VA
SPENCER	WMEC 905	Robert E Derecktor Corp	26 June 1982	17 Apr 1984	28 June 1986	AA	Boston, MA
SENECA	WMEC 906	Robert E Derecktor Corp	16 Sep 1982	17 Apr 1984	4 May 1987	AA	Boston, MA
ESCANABA	WMEC 907	Robert E Derecktor Corp	1 Apr 1983	6 Feb 1985	27 Aug 1987	AA	Boston, MA
TAHOMA	WMEC 908	Robert E Derecktor Corp	28 June 1983	6 Feb 1985	6 Apr 1988	AA	Kittery, ME
CAMPBELL	WMEC 909	Robert E Derecktor Corp	10 Aug 1984	29 Apr 1986	19 Aug 1988	AA	Kittery, ME
THETIS	WMEC 910	Robert E Derecktor Corp	24 Aug 1984	29 Apr 1986	30 June 1989	AA	Key West, FL
FORWARD	WMEC 911	Robert E Derecktor Corp	11 July 1986	22 Aug 1987	4 Aug 1990	AA	Portsmouth, VA
LEGARE	WMEC 912	Robert E Derecktor Corp	11 July 1986	22 Aug 1987	4 Aug 1990	AA	Portsmouth, VA
MOHAWK	WMEC 913	Robert E Derecktor Corp	15 Mar 1987	5 May 1988	20 Mar 1991	AA	Key West, FL

Displacement, tons: 1,820 full load
Dimensions, feet (metres): 270 × 38 × 13.9 *(82.3 × 11.6 × 4.2)*
Main machinery: 2 Alco 18V-251 diesels; 7,290 hp *(5.44 MW)* sustained; 2 shafts; cp props
Speed, knots: 19.5. **Range, miles:** 12,700 at 15 kt
Complement: 100 (14 officers) plus 5 aircrew

Guns: 1 OTO Melara 3 in *(76 mm)*/62 Mk 75; 85 rds/min to 16 km *(8.7 n miles)* anti-surface; 12 km *(6.6 n miles)* anti-aircraft; weight of shell 6 kg.
2—12.7 mm MGs or 2—40 mm Mk 19 grenade launchers.
Countermeasures: Decoys: 2 Loral Hycor SRBOC 6-barrelled fixed Mk 36; IR flares and chaff.
ESM/ECM: SLQ-32(V)2; radar intercept.

Combat data systems: SCCS-270; OTCIXS satellite link.
Radars: Surface search: Hughes/Furuno SPS-73; I-band.
Fire control: Sperry Mk 92 Mod 1; I/J-band.
Tacan: URN 25.

Helicopters: 1 HH-65A or HH-60J or MH-68A.

Programmes: The contract for construction of WMEC 905-913 was originally awarded to Tacoma Boatbuilding Co on 29 August 1980. However, under lawsuit from the Robert E Derecktor Corp, Middletown, Rhode Island, the contract to Tacoma was determined by a US District Court to be invalid and was awarded to Robert E Derecktor Corp on 15 January 1981.
Modernisation: OTCIXS satellite link fitted from 1992.

Structure: They are the only medium endurance cutters with a helicopter hangar (which is telescopic) and the first cutters with automated command and control centre. Fin stabilisers fitted. Plans to fit SSM and/or CIWS have been abandoned as has towed array sonar and sonobuoy datalinks. New radars fitted 1997-99.
Operational: Bases are at Portsmouth, New Bedford, Key West and Boston. Very lively in heavy seas because the length to beam ratio is unusually small for ships required to operate in Atlantic conditions.

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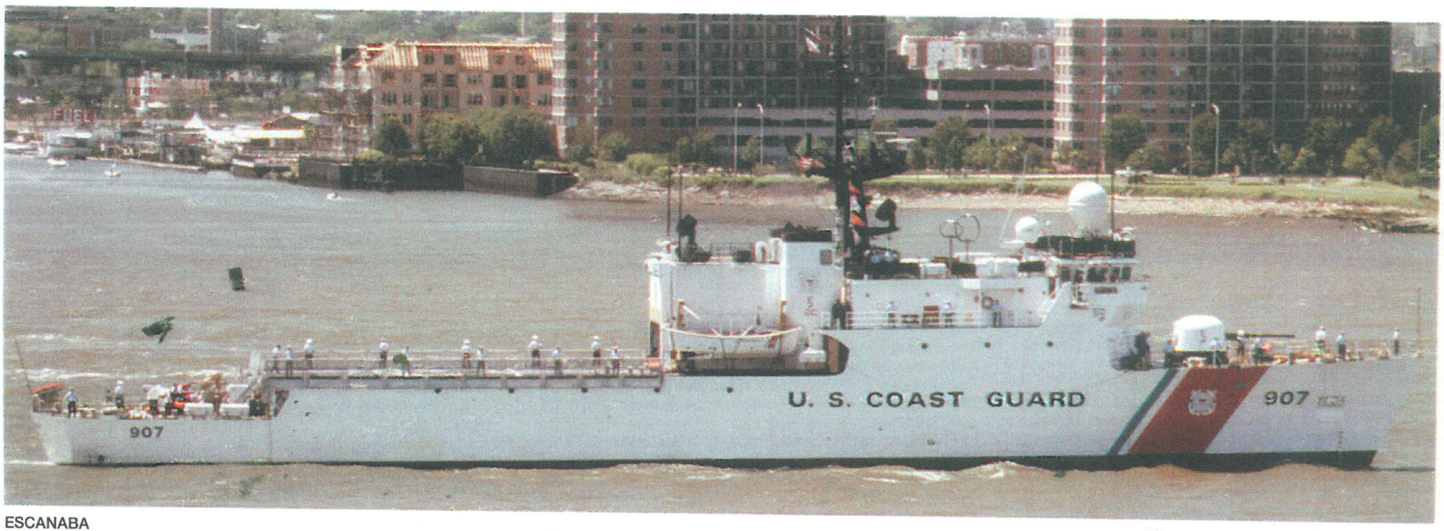

ESCANABA

5/2002, van Ginderen Collection / 0144056

14 RELIANCE CLASS (PSOH/WMEC)

Name	*No*	*Builders*	*Commissioned*	*MMA completion*	*F/S*	*Home Port*
RELIANCE	WMEC 615	Todd Shipyards	20 June 1964	Jan 1989	AA	Kittery, ME
DILIGENCE	WMEC 616	Todd Shipyards	26 Aug 1964	Mar 1992	AA	Wilmington, DE
VIGILANT	WMEC 617	Todd Shipyards	3 Oct 1964	Aug 1990	AA	Cape Canaveral, FL
ACTIVE	WMEC 618	Christy Corp	17 Sep 1966	Feb 1987	PA	Port Angeles, WA
CONFIDENCE	WMEC 619	Coast Guard Yard, Baltimore	19 Feb 1966	June 1988	AA	Cape Canaveral, FL
RESOLUTE	WMEC 620	Coast Guard Yard, Baltimore	8 Dec 1966	Mar 1996	AA	St Petersburg, FL
VALIANT	WMEC 621	American Shipbuilding Co	28 Oct 1967	July 1993	AA	Miami, FL
STEADFAST	WMEC 623	American Shipbuilding Co	25 Sep 1968	Feb 1994	AA	Warrenton, OR
DAUNTLESS	WMEC 624	American Shipbuilding Co	10 June 1968	Mar 1995	AA	Galveston, TX
VENTUROUS	WMEC 625	American Shipbuilding Co	16 Aug 1968	Sep 1995	AA	St Petersburg, FL
DEPENDABLE	WMEC 626	American Shipbuilding Co	22 Nov 1968	Aug 1997	AA	Cape May, NJ
VIGOROUS	WMEC 627	American Shipbuilding Co	2 May 1969	Jan 1993	AA	Cape May, NJ
DECISIVE	WMEC 629	Coast Guard Yard, Baltimore	23 Aug 1968	Sep 1998	AA	Pascagoula, MS
ALERT	WMEC 630	Coast Guard Yard, Baltimore	4 Aug 1969	Sep 1994	PA	Warrenton, OR

Displacement, tons: 1,129 full load (WMEC 620-630)
1,110 full load (WMEC 618, 619)
Dimensions, feet (metres): 210.5 × 34 × 10.5
(64.2 × 10.4 × 3.2)
Main machinery: 2 Alco 16V-251 diesels; 6,480 hp *(4.83 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 18. **Range, miles:** 6,100 at 14 kt; 2,700 at 18 kt
Complement: 75 (12 officers)

Guns: 1 Boeing 25 mm/87 Mk 38 Bushmaster; 200 rds/min to 6.8 km *(3.4 n miles)*. 2—12.7 mm MGs.

Combat data systems: SCCS-210.
Radars: Surface search: Hughes/Furuno SPS-73; I-band.
Helicopters: 1 HH-65A or MH-68A embarked as required.

Modernisation: All 14 cutters have undergone a Major Maintenance Availability (MMA). The exhausts for main engines, ship service generators and boilers have been run in a new vertical funnel which reduces flight deck size. Completion dates are listed above. 76 mm guns have been replaced by 25 mm Mk 38.

Structure: Designed for search and rescue duties. Design features include 360° visibility from bridge; helicopter flight deck (no hangar); and engine exhaust vent at stern which has been replaced by a funnel during MMA. Capable of towing ships up to 10,000 tons. Air conditioned throughout except engine room; high degree of habitability.
Operational: Normally operate within 500 miles of the coast. Primary roles are SAR, law enforcement homeland security and defence operations.

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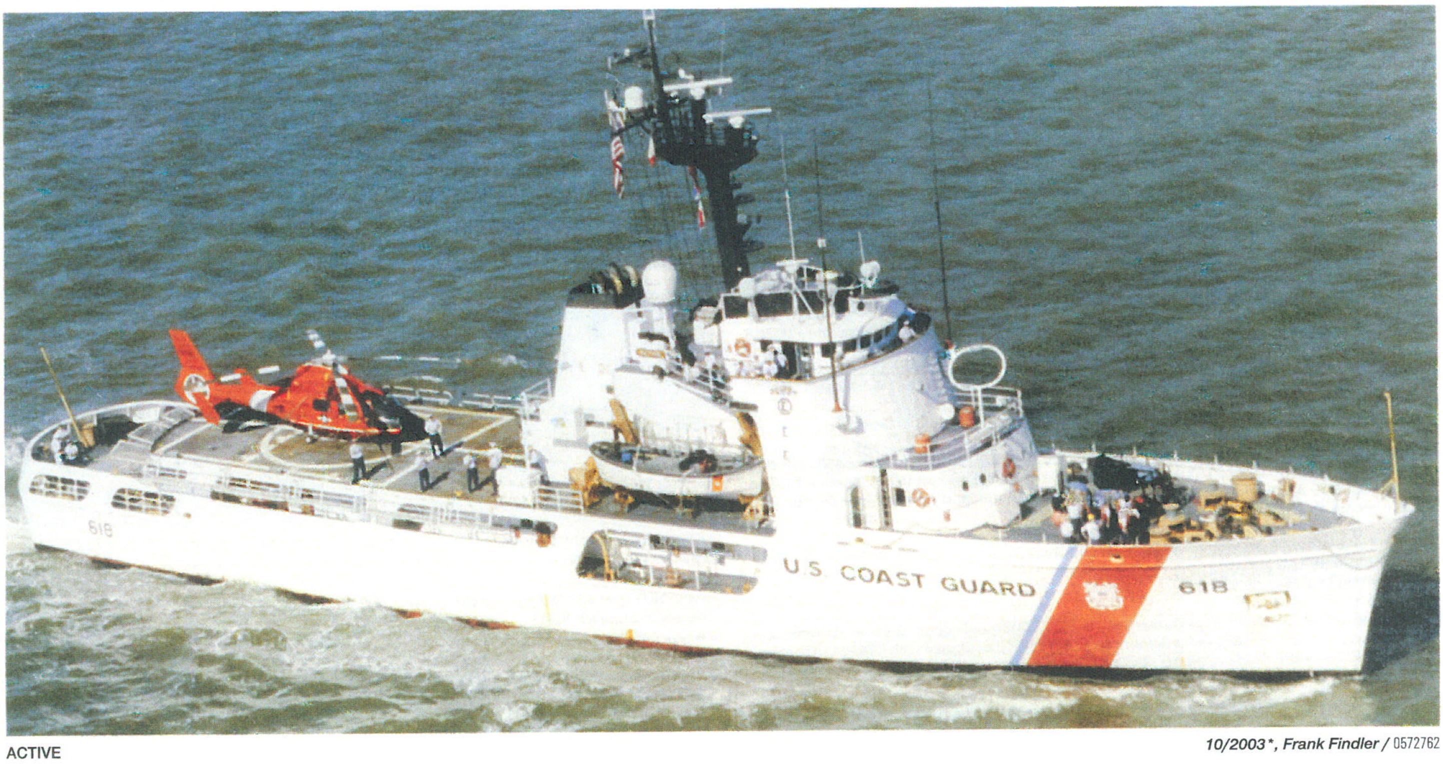

ACTIVE

10/2003, Frank Findler* / 0572762

1 EDENTON CLASS (PSOH/WMEC)

Name	*No*	*Builders*	*Commissioned*	*F/S*
ALEX HALEY (ex-*Edenton*)	WMEC 39 (ex-ATS 1)	Brooke Marine, Lowestoft	23 Jan 1971	PA

Displacement, tons: 3,000 full load
Dimensions, feet (metres): 282.6 × 50 × 15.1 *(86.1 × 15.2 × 4.6)*
Main machinery: 4 Caterpillar 3516 DITAWJ diesels; 6,000 hp(m) *(4.41 MW)*; 2 shafts; cp props; bow thruster
Speed, knots: 18. **Range, miles:** 10,000 at 13 kt
Complement: 99 (9 officers)
Guns: 2 McDonnell Douglas 25 mm/87 Mk 38; 200 rds/min to 6.8 km *(3.4 n miles)*. 2—12.7 mm MGs.
Radars: Surface search: Hughes/Furuno SPS-73; I-band.
Combat data systems: SCCS-282.
Helicopters: Platform for 1 HH-65A or 1 HH-60J.

Comment: Former Navy salvage ship paid off in 1996 and taken on by the Coast Guard in November 1997 for conversion. All diving and salvage gear removed, flight deck installed, and upgraded navigation and communications. Armed with 25 mm guns. Based in Kodiak, AK. Used in the Bering Sea, Gulf of Alaska and North Pacific as a multi-mission cutter from 16 December 1999.

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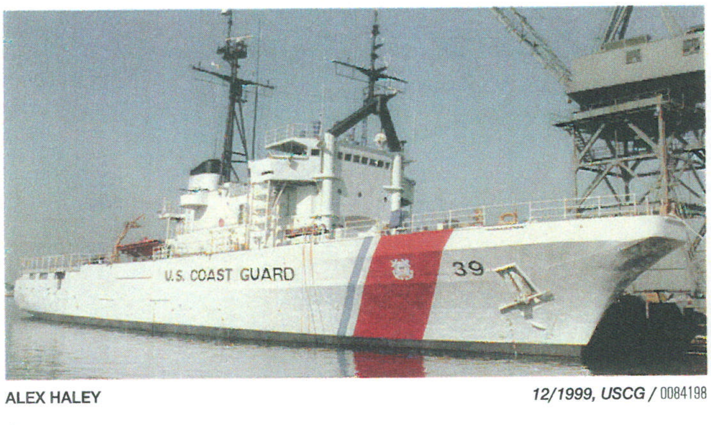

ALEX HALEY

12/1999, USCG / 0084198

1 DIVER CLASS (PSO/WMEC)

Name	*No*	*Builders*	*USN Comm*	*F/S*
ACUSHNET (ex-*Shackle*)	WMEC 167 (ex-WAGO 167, ex-WAT 167, ex-ARS 9)	Basalt Rock Co, Napa, CA	5 Feb 1944	PA

Displacement, tons: 1,557 standard; 1,745 full load
Dimensions, feet (metres): 213 × 41 × 15 *(64.9 × 12.5 × 4.6)*
Main machinery: 4 Fairbanks-Morse diesels; 3,000 hp *(2.24 MW)* sustained; 2 shafts
Speed, knots: 15.5. **Range, miles:** 9,000 at 8 kt
Complement: 75 (9 officers)
Radars: Navigation: 2 Raytheon SPS-73; I-band.

Comment: Large, steel-hulled salvage ship transferred from the Navy to the Coast Guard and employed in tug and oceanographic duties. Modified for handling environmental data buoys and reclassified WAGO in 1968 and reclassified WMEC in 1980. Major renovation work completed in 1983 and now used for SAR Homeland Security and law enforcement operations. Based in Ketchikan, AK.

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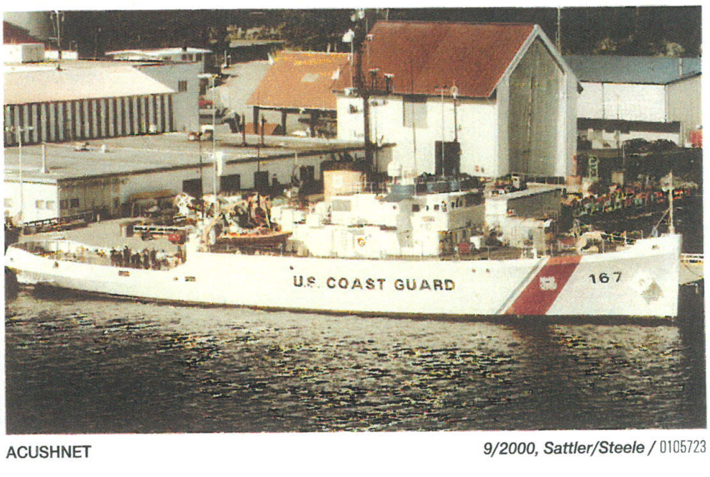


ACUSHNET

9/2000, Sattler/Steele / 0105723

1 STORIS CLASS (PSO/WMEC)

Name	*No*	*Builders*	*Commissioned*	*F/S*
STORIS (ex-*Eskimo*)	WMEC 38 (ex-WAGB 38)	Toledo Shipbuilding	30 Sep 1942	PA

Displacement, tons: 1,715 standard; 1,925 full load
Dimensions, feet (metres): 230 × 43 × 15 *(70.1 × 13.1 × 4.6)*
Main machinery: Diesel-electric; 3 GM EMD diesel generators; 1 motor; 3,000 hp *(2.24 MW)*; 1 shaft
Speed, knots: 14. **Range, miles:** 22,000 at 8 kt
Complement: 78 (10 officers)
Guns: 1 Boeing 25 mm/87 Mk 38 Bushmaster.
Radars: Navigation: 2 Raytheon SPS-73; I-band.

Comment: Laid down on 14 July 1941; launched on 4 April 1942 as ice patrol tender. Strengthened for ice navigation but no longer employed as icebreaker. Employed in Alaskan service for search, rescue Homeland Security and law enforcement. Completed a major maintenance availability in June 1986, during which main engines were replaced with EMD diesels and living quarters expanded. Gun changed in 1994. Based in Kodiak, AK.

UPDATED

STORIS *3/1998, van Ginderen Collection* / 0053416

SHIPBORNE AIRCRAFT

Notes: As part of the 'Deepwater' modernisation programme, it is planned to replace the HH-60J Jayhawks with an estimated 34 VTOL Recovery and Surveillance aircraft (VRS) from 2014. The Bell-Agusta AB 139 has been provisionally selected but the Eurocopter 155 and Bell-Textron 609 tilt-rotor craft are also under consideration.

Numbers/Type: 48/48 Eurocopter HH-65A/HH-65B Dolphin.
Operational speed: 165 kt *(300 km/h)*.
Service ceiling: 11,810 ft *(3,600 m)*.
Range: 300 n miles *(554 km)*.
Role/Weapon systems: Short-range rescue and recovery (SRR) helicopter. Sensors: Bendix RDR 1300 radar and Collins mission management system. HH-65B equipped with CDU-900G control displays and MFD-255 multifunctional displays. Weapons: Unarmed.

UPDATED

6517
COAST GUARD

HH-65A *10/2003*, Frank Findler* / 0572760

Numbers/Type: 42 Sikorsky HH-60J Jayhawk.
Operational speed: 146 kt *(270 km/h)*.
Service ceiling: 13,000 ft *(3,961 m)*.
Range: 300 n miles *(554 km)*.
Role/Weapon systems: Coast Guard version of Seahawk, first flew in 1988. 35 are operational. It has replaced HH-3F in MRR role. A life-extension programme and avionics upgrade is to begin in mid-2005 to extend service life until at least 2014. Sensors: Bendix RDR-1300C weather/search radar. AAQ-15 FLIR. Weapons: Unarmed.

UPDATED

6003
U.S.
COAST GUARD

HH-60J *3/2003*, Adolfo Ortigueira Gil* / 0572761

Numbers/Type: 8 Agusta A 109 MH-68A.
Operational speed: 168 kt *(310 km/h)*.
Service ceiling: 20,000 ft *(6,100 m)*.
Range: 200 n miles *(370 km)*.
Role/Weapon systems: All-weather, short-range interdiction helicopter selected as follow on to Enforcer to counter high-speed smuggling/drug-running craft. Last of eight aircraft procured in 2001.

UPDATED

MH-68A *2000, USCG* / 0105721

LAND-BASED MARITIME AIRCRAFT

Notes: (1) As part of the 'Deepwater' modernisation programme, it is planned to procure approximately 34 Maritime Patrol Aircraft. These will be the EADS-Casa 235 (extended range), the first 12 of which will be delivered by 2007. They are likely to be equipped with synthetic-aperture radar and with electro-optic sensors. The first two were ordered on 18 February 2004.
(2) The 'Deepwater' programme also provides for about 69 Bell-Textron Eagle Eye. These Vertical Take-off and Landing UAVs will be deployable from land and sea-based platforms.
(3) Four P-3B Orions are used for AEW by US Customs.

Numbers/Type: 1 Gulfstream C-37A.
Operational speed: 459 kt *(850 km/h)*.
Service ceiling: 51,000 ft *(15,540 m)*.
Range: 5,600 n miles *(10,370 km)*.
Role/Weapon: Military version of Gulfstream V which replaced a C-20B Gulfstream III in May 2002. Based at Air Station Washington DC. Serves as a long-range command and control aircraft for Coast Guard command officials.

NEW ENTRY

GULFSTREAM G 550 *6/2003*, Paul Jackson* / 0568402

Numbers/Type: 4/7/6 AMD-BA HU-25 A/C/D Guardian Falcon.
Operational speed: 420 kt *(774 km/h)*.
Service ceiling: 42,000 ft *(12,800 m)*.
Range: 1,940 n miles *(3,594 km)*.
Role/Weapon systems: Medium-range maritime surveillance role. 17 are operational; 21 are in storage or support aircraft. Sensors: APS-127 weather/search radar. Weapons: unarmed.

UPDATED

U.S. COAST GUARD
2121

HU-25 FALCON *6/2001, Adolfo Ortigueira Gil* / 0529903

Numbers/Type: 19/8 Lockheed HC-130H/HC-130J.
Operational speed: 325 kt *(602 km/h)*.
Service ceiling: 33,000 ft *(10,060 m)*.
Range: 4,250 n miles *(7,876 km)*; 5,020 n miles *(9,295 km)* (HC-130J).
Role/Weapon systems: Long-range maritime reconnaissance role. 22 are operational; five are in maintenance and modification. Delivery of first new HC-130J started in 2003. Sensors: APS-137 or APS-125 weather/search radar. FLIR. Weapons: unarmed.

UPDATED

USCG
U.S. COAST GUARD

HC-130H *10/2002, M Mazumdar* / 0529904

ICEBREAKERS

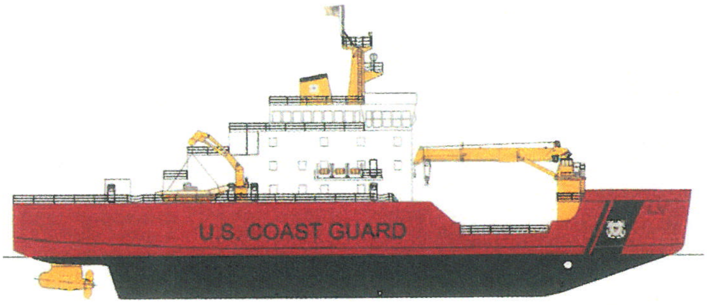
0 + 1 ICEBREAKER (WAGB)

Name	*No*	*Builders*	*Commissioned*
MACKINAW	WAGB 30	Manitowac Marine, Wisconsin	2006

Displacement, tons: 3,395 full load
Dimensions, feet (metres): 240 × 58 × 15.3 *(73.1 × 17.7 × 4.7)*
Main machinery: Diesel-electric; 3 diesel generators; 2 podded propulsors
Speed, knots: 15
Complement: 50
Radars: Surface search: To be announced.
Navigation: To be announced.

Comment: New icebreaker and buoy tender laid down on 10 February 2004 for delivery in late 2005. To replace WAGB 83 in mid-2006 when it will assume the same name. In addition to breaking ice for the primary shipping lanes on the Great Lakes, the new ship will service aids to navigation, as well as performing search and rescue, pollution control, homeland security, and law enforcement duties from its homeport of Cheboygan, Michigan.

NEW ENTRY



MACKINAW (artist's impression) *1/2004*, USCG* / 0572806

1 HEALY CLASS (WAGBH)

Name	*No*	*Builders*	*Commissioned*	*F/S*
HEALY	WAGB 20	Avondale, New Orleans	29 Oct 1999	PA

Displacement, tons: 16,400 full load
Dimensions, feet (metres): 420 oa; 397.8 wl × 82 × 32 *(128; 121.2 × 25 × 9.8)*
Main machinery: Diesel-electric; 4 Westinghouse/Sulzer 12ZA 40S diesels; 42,400 hp *(31.16 MW)*; 4 Westinghouse alternators; 2 motors; 30,000 hp *(22.38 MW)*; 2 shafts; bow thruster; 2,200 hp *(1.64 MW)*
Speed, knots: 17. **Range, miles:** 16,000 at 12.5 kt
Complement: 75 (12 officers) plus 45 scientists
Helicopters: 2 HH-65A or 1 HH-60J.

Comment: In response to the 1984 Interagency Polar Icebreaker Requirements Study and Congressional mandate, approval was given for the construction of a new icebreaker as a replacement for two 'Wind' class which were then decommissioned in 1988. However, no action was taken to provide funds for the new ship until Congress included it in the Navy's FY91 ship construction budget and after further delays the ship was ordered 15 July 1993. Icebreaking capability of 4 ft at 3 kt. Launched 15 November 1997. Based at Seattle, WA.

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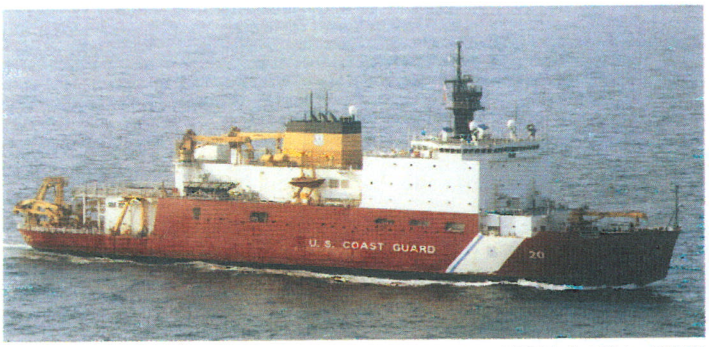


HEALY *1/2003*, Bob Fildes* / 0572759

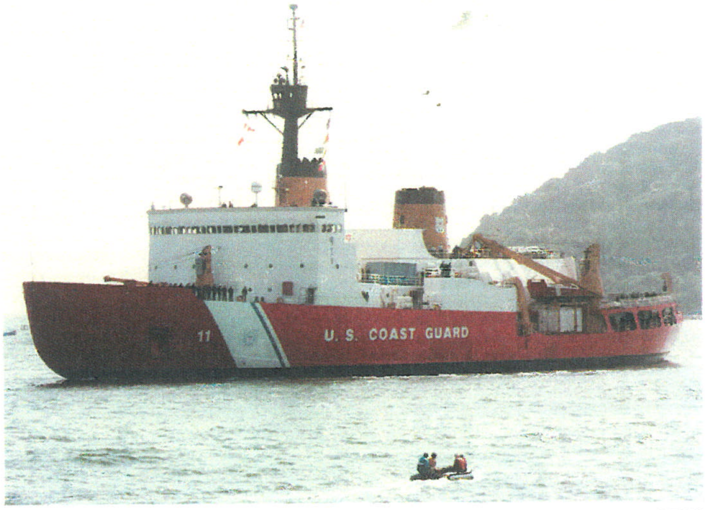
2 POLAR CLASS (WAGBH)

Name	*No*	*Builders*	*Launched*	*Commissioned*	*F/S*
POLAR STAR	WAGB 10	Lockheed SB	17 Nov 1973	19 Jan 1976	PA
POLAR SEA	WAGB 11	Lockheed SB	24 June 1975	23 Feb 1978	PA

Displacement, tons: 13,190 full load
Dimensions, feet (metres): 399 × 84 × 32 *(121.6 × 25.6 × 9.8)*
Main machinery: CODOG; diesel-electric (AC/DC); 6 Alco 16V-251F/Westinghouse AC diesel generators; 21,000 hp *(15.66 MW)* sustained; 3 Westinghouse DC motors; 18,000 hp *(13.42 MW)* sustained; 3 Pratt & Whitney FT4A-12 gas turbines; 60,000 hp *(44.76 MW)* sustained; 3 Philadelphia 75 VMGS gears; 60,000 hp *(44.76 MW)* sustained; 3 shafts; cp props
Speed, knots: 20. **Range, miles:** 28,275 at 13 kt
Complement: 134 (15 officers) plus 33 scientists and 12 aircrew
Guns: 2—7.62 mm MGs.
Radars: Navigation: 2 Raytheon SPS-64; I-band.
Tacan: SRN 15.
Helicopters: 2 HH-65A or 1 HH-60J.

Comment: Both are based at Seattle, Washington. At a continuous speed of 3 kt, they can break ice 6 ft *(1.8 m)* thick, and by ramming can break 21 ft *(6.4 m)* pack. Conventional icebreaker hull form with 'White' cutaway bow configuration and well-rounded body sections to prevent being trapped in ice. The ice belt is 1.75 in *(44.45 mm)* thick supported by framing at 16 in *(0.4 m)* centres. Three heeling systems assist icebreaking and ship extraction. Two 15 ton capacity cranes fitted aft; one 3 ton capacity crane fitted forward. Two over-the-side oceanographic winches, one over-the-stern trawl/core winch. Deck fixtures for scientific research vans, and research laboratories provided for arctic and oceanographic research. Between 1986-92, science facilities were upgraded including habitability, lab spaces and winch capabilities. *Polar Sea* went to the North Pole in August 1994.

VERIFIED



POLAR SEA *6/2001, H M Steele* / 0076792

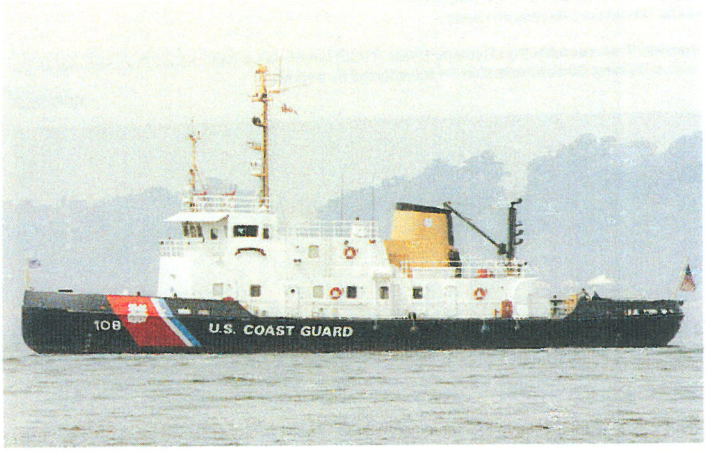
9 BAY CLASS (TUGS—WTGB)

Name	*No*	*Laid down*	*Commissioned*	*F/S*
KATMAI BAY	WTGB 101	7 Nov 1977	8 Jan 1979	GLA
BRISTOL BAY	WTGB 102	13 Feb 1978	5 Apr 1979	GLA
MOBILE BAY	WTGB 103	13 Feb 1978	6 May 1979	GLA
BISCAYNE BAY	WTGB 104	29 Aug 1978	8 Dec 1979	GLA
NEAH BAY	WTGB 105	6 Aug 1979	18 Aug 1980	GLA
MORRO BAY	WTGB 106	6 Aug 1979	25 Jan 1981	AA
PENOBSCOT BAY	WTGB 107	24 July 1983	4 Sep 1984	AA
THUNDER BAY	WTGB 108	20 July 1984	29 Dec 1985	AA
STURGEON BAY	WTGB 109	9 July 1986	20 Aug 1988	AA

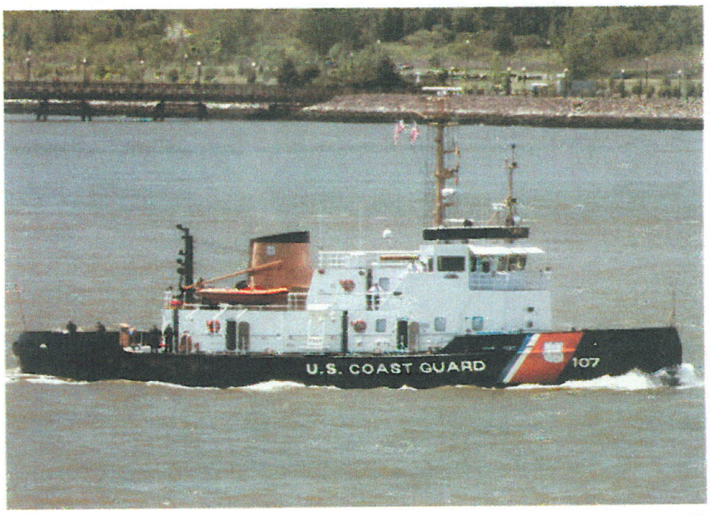
Displacement, tons: 690 full load
Dimensions, feet (metres): 140 × 37.6 × 12.5 *(42.7 × 11.4 × 3.8)*
Main machinery: Diesel-electric; 2 Fairbanks-Morse 38D8-1/8-10 diesel generators; 2.4 MW sustained; Westinghouse electric drive; 2,500 hp *(1.87 MW)*; 1 shaft
Speed, knots: 14.7. **Range, miles:** 4,000 at 12 kt
Complement: 17 (3 officers)
Radars: Navigation: Raytheon SPS-64(V)1; I-band.

Comment: The size, manoeuvrability and other operational characteristics of these vessels are tailored for operations in harbours and other restricted waters and for fulfilling present and anticipated multimission requirements. All units are ice strengthened for operation on the Great Lakes, coastal waters and in rivers and can break 24 in of ice continuously and up to 8 ft by ramming. A self-contained portable bubbler van and system reduces hull friction. First six built at Tacoma Boatbuilding, Tacoma. WTGB 107-109 built in Tacoma by Bay City Marine, San Diego. *Bristol Bay* and *Mobile Bay* have had their bows reinforced to push the two aids-to-navigation barges on the Great Lakes. WTGB 106 was decommissioned in 1998 and re-activated on 4 February 2002.

VERIFIED



THUNDER BAY *7/2000, Hachiro Nakai* / 0105725



PENOBSCOT BAY *5/2002, van Ginderen Collection* / 0144052

1 MACKINAW CLASS (WAGB)

Name	*No*	*Builders*	*Commissioned*	*F/S*
MACKINAW	WAGB 83	Toledo Shipbuilding	20 Dec 1944	GLA

Displacement, tons: 5,252 full load
Dimensions, feet (metres): 290 × 74 × 19 *(88.4 × 22.6 × 5.8)*
Main machinery: Diesel-electric; 6 Fairbanks-Morse 38D8-1/8-12 diesel generators; 8.7 MW sustained; Elliot electric drive; 10,000 hp *(7.46 MW)*; 3 shafts (1 fwd, 2 aft)
Speed, knots: 18.7. **Range, miles:** 41,000 at 11.5 kt; 10,000 at 18.7 kt
Complement: 77 (13 officers)
Radars: Navigation: Hughes/Furuno SPS-73; I-band.

Comment: Specially designed and constructed for service as icebreaker on the Great Lakes. Based at Cheboygan, MI. Equipped with two 5 ton capacity cranes. First scheduled to be paid off in FY88 but pressure from members of Congress from states bordering the Great Lakes resulted in her being placed in an 'In Commission, Special' status. Operational again in Spring 1988. Again scheduled for decommissioning in December 1994 after 50 years' service but extended to July 2006 when she will be replaced by a new ship of the same name. ***UPDATED***

MACKINAW *2001, USCG* / 0131334

PATROL FORCES

Notes: As part of the 'Deepwater' modernisation programme, it is planned to replace the 'Island' class with 58 Fast Response Cutters (FRC). These 40 m ships are expected to enter service from 2017.

44 GUARDIAN CLASS (TPSB/YP)

Displacement, tons: 3 full load
Dimensions, feet (metres): 24.6 × 8.2 × 0.4 *(7.5 × 2.5 × 0.4)*
Main machinery: 2 Evinrude outboards; 350 hp *(261 kW)*
Speed, knots: 35
Complement: 4
Guns: 1—12.7 mm MG. 2—7.62 mm MGs.
Radars: Navigation: Raytheon; I-band.

Comment: Transportable Port Security Boats (TPSB) which serve with the six Port Security Units and a Training Detachment. Can be transported by aircraft. ***VERIFIED***

GUARDIAN *4/2001, Guy Toremans* / 0131265

GUARDIAN *7/2000, Hachiro Nakai* / 0105727

49 ISLAND CLASS (WPB)

Name	*No*	*Commissioned*	*Home Port*
FARALLON	WPB 1301	21 Feb 1986	Miami, FL
MANITOU	WPB 1302	28 Feb 1986	Miami, FL
MATAGORDA	WPB 1303	24 Apr 1986	Miami, FL
MAUI	WPB 1304	9 May 1986	Miami, FL
MONHEGAN	WPB 1305	16 June 1986	Key West, FL
NUNIVAK	WPB 1306	4 July 1986	San Juan, PR
OCRACOKE	WPB 1307	4 Aug 1986	San Juan, PR
VASHON	WPB 1308	15 Aug 1986	San Juan, PR
AQUIDNECK	WPB 1309	26 Sep 1986	Atlantic Beach, VA
MUSTANG	WPB 1310	3 Dec 1986	Seward, AK
NAUSHON	WPB 1311	5 Dec 1986	Ketchikan, AK
SANIBEL	WPB 1312	28 May 1987	Woods Hole, MA
EDISTO	WPB 1313	27 Mar 1987	San Diego, CA
SAPELO	WPB 1314	14 May 1987	Key West, FL
MATINICUS	WPB 1315	19 June 1987	San Juan, PR
NANTUCKET	WPB 1316	10 Aug 1987	Key West, FL
ATTU	WPB 1317	9 May 1988	San Juan, PR
BARANOF	WPB 1318	25 May 1988	Miami, FL
CHANDELEUR	WPB 1319	8 June 1988	Miami, FL
CHINCOTEAGUE	WPB 1320	8 Aug 1988	Keywest, FL
CUSHING	WPB 1321	8 Aug 1988	Mobile, AL
CUTTYHUNK	WPB 1322	5 Oct 1988	Port Angeles, WA
DRUMMOND	WPB 1323	19 Oct 1988	Mayport, FL
KEY LARGO	WPB 1324	24 Dec 1988	Keywest, FL
METOMPKIN	WPB 1325	12 Jan 1989	Keywest, FL
MONOMOY	WPB 1326	19 May 1989	Woods Hole, MA
ORCAS	WPB 1327	14 Apr 1989	Coos Bay, OR
PADRE	WPB 1328	21 Apr 1989	Key West, FL
SITKINAK	WPB 1329	31 May 1989	Key West, FL
TYBEE	WPB 1330	4 Aug 1989	San Diego, CA
WASHINGTON	WPB 1331	6 Oct 1989	Honolulu, HI
WRANGELL	WPB 1332	15 Sep 1989	South Portland, ME
ADAK	WPB 1333	17 Nov 1989	Sandy Hook, NJ
LIBERTY	WPB 1334	22 Sep 1989	Auke Bay, AK
ANACAPA	WPB 1335	13 Jan 1990	Petersburg, AK
KISKA	WPB 1336	21 Apr 1990	Hilo, HI
ASSATEAGUE	WPB 1337	15 June 1990	Honolulu, HI
GRAND ISLE	WPB 1338	19 Apr 1991	Gloucester, MA
KEY BISCAYNE	WPB 1339	23 Apr 1991	St Petersburg, FL
JEFFERSON ISLAND	WPB 1340	16 Aug 1991	South Portland, ME
KODIAK ISLAND	WPB 1341	21 June 1991	St Petersburg, FL
LONG ISLAND	WPB 1342	27 Aug 1991	San Diego, CA
BAINBRIDGE ISLAND	WPB 1343	20 Sep 1991	Sandy Hook, NJ
BLOCK ISLAND	WPB 1344	22 Nov 1991	Fort Macon, GA
STATEN ISLAND	WPB 1345	22 Nov 1991	Fort Macon, GA
ROANOKE ISLAND	WPB 1346	8 Feb 1992	Homer, AK
PEA ISLAND	WPB 1347	29 Feb 1992	St Petersburg, FL
KNIGHT ISLAND	WPB 1348	22 Apr 1992	St Petersburg, FL
GALVESTON ISLAND	WPB 1349	5 June 1992	Apra Harbor, Guam

Displacement, tons: 168 (A series); 154 (B series); 134 (C series) full load
Dimensions, feet (metres): 110 × 21 × 7.3 *(33.5 × 6.4 × 2.2)*
Main machinery: 2 Paxman Valenta 16RP 200M diesels (C series); 6,246 hp *(4.62 MW)*, sustained; 2 Caterpillar 3516 DITA diesels (A and B series); 5,596 hp *(4.17 MW)* sustained; 2 shafts
Speed, knots: 29. **Range, miles:** 3,928 at 10 kt
Complement: 16 (2 officers)
Guns: 1 McDonnell Douglas 25 mm/87 Mk 38. 2—12.7 mm M60 MGs.
Combat data systems: SCCS-Lite.
Radars: Navigation: Hughes/Furuno SPS-73; I-band.

Comment: All built by the Bollinger Machine Shop and Shipyard at Lockport, Louisiana. The design is based upon the 110 ft patrol craft built by Vosper Thornycroft, UK, in service in Venezuela, UAE and UK Customs, but modified to meet Coast Guard needs. Vosper Thornycroft supplied design support, stabilisers, propellers, and steering gear. Batches: A 1301-1316, B 1317-1337, C 1338-1349. Radars replaced by 1999. As part of the 'Deepwater' modernisation programme, it is planned to progressively upgrade all 49 ships in batches. The ships are to be stretched by insertion of a 4 m plug, to receive upgraded C4ISR systems and to be fitted with a stern launch and recovery system. Some are deployed to the Gulf. ***UPDATED***

EDISTO *10/1999, Findler & Winter* / 0084205

AQUIDNECK *4/2003*, A Sharma* / 0572758

56 MARINE PROTECTOR CLASS (WPB)

Name	*No*	*Commissioned*	*Home Port*
BARRACUDA	87301	24 Feb 1998	Eureka, CA
HAMMERHEAD	87302	17 May 1998	Boston, MA
MAKO	87303	28 June 1998	Cape May, NJ
MARLIN	87304	2 Dec 1998	Fort Meyers, FL
STINGRAY	87305	13 Jan 1999	Mobile, AL
DORADO	87306	24 Feb 1999	Crescent City, CA
OSPREY	87307	7 Apr 1999	Port Townsend, WA
CHINOOK	87308	19 May 1999	New London, CT
ALBACORE	87309	30 June 1999	Little Creek, VA
TARPON	87310	11 Aug 1999	Tybee Island, GA
COBIA	87311	8 Sep 1999	Mobile, AL
HAWKSBILL	87312	6 Oct 1999	Monterey, CA
CORMORANT	87313	3 Nov 1999	Fort Pierce, FL
FINBACK	87314	1 Dec 1999	Cape May, NJ
AMBERJACK	87315	29 Dec 1999	Port Isabel, TX
KITTIWAKE	87316	26 Jan 2000	Nawiliwilli, HI
BLACKFIN	87317	23 Feb 2000	Santa Barbara, CA
BLUEFIN	87318	22 Mar 2000	Fort Pierce, FL
YELLOWFIN	87319	19 Apr 2000	Charleston, SC
MANTA	87320	17 May 2000	Freeport, TX
COHO	87321	14 June 2000	Pamana City, FL
KINGFISHER	87322	12 July 2000	Mayport, FL
SEAHAWK	87323	9 Aug 2000	Carrabelle, FL
STEELHEAD	87324	6 Sep 2000	Port Aransas, TX
BELUGA	87325	4 Oct 2000	Portsmouth, VA
BLACKTIP	87326	1 Nov 2000	Oxnard, CA
PELICAN	87327	29 Nov 2000	Morgan City, LA
RIDLEY	87328	27 Dec 2000	Montauk, NY
COCHITO	87329	24 Jan 2001	Little Creek, VA
MANOWAR	87330	21 Feb 2001	Galveston, TX
MORAY	87331	21 Mar 2001	Jonesport, ME
RAZORBILL	87332	18 Apr 2001	Gulfport, MS
ADELIE	87333	16 May 2001	Port Angeles, WA
GANNET	87334	13 June 2001	Fort Lauderdale, FL
NARWHAL	87335	11 July 2001	Newport Beach, CA
STURGEON	87336	8 Aug 2001	Grand Isle, LA
SOCKEYE	87337	5 Sep 2001	Bodega Bay, CA
IBIS	87338	3 Oct 2001	Cape May, NJ
POMPANO	87339	1 Nov 2001	Gulfport, MS
HALIBUT	87340	28 Nov 2001	Marina Del Ray, CA
BONITO	87341	26 Dec 2001	Pensacola, FL
SHRIKE	87342	23 Jan 2002	Cape Canaveral, FL
TERN	87343	20 Feb 2002	San Francisco, CA
HERON	87344	20 Mar 2002	Sabine, TX
WAHOO	87345	17 Apr 2002	Port Angeles, WA
FLYINGFISH	87346	15 May 2002	Gloucester, MA
HADDOCK	87347	12 June 2002	San Diego, CA
BRANT	87348	10 July 2002	Corpus Christi, TX
SHEARWATER	87349	7 Aug 2002	Portsmouth, VA
PETREL	87350	4 Sep 2002	San Diego, CA
SEA LION	87352	19 Nov 2003	Bellingham, WA
SKIPJACK	87353	17 Dec 2003	Galveston, TX
DOLPHIN	87354	14 Jan 2004	Miami, FL
HAWK	87355	11 Feb 2004	St Petersburg, FL
SAILFISH	87356	10 Mar 2004	Sandy Hook, NJ
SAWFISH	87357	7 Apr 2004	Key West, FL

Displacement, tons: 91 full load
Dimensions, feet (metres): 86.9 × 19 × 5.2 *(26.5 × 5.8 × 1.6)*
Main machinery: 2 MTU 8V 396 TE94 diesels; 2,680 hp(m) *(1.97 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 900 at 8 kt
Complement: 10 (1 officer)
Guns: 2—12.7 mm MGs.
Radars: Navigation: I-band.

Comment: Designed by David M Cannell based on the hull of the Damen Stan Patrol 2600 which is in service with the Hong Kong police. Steel hull built by Bollinger with GRP superstructure by Halmatic. A stern ramp is used for launching a 5.5 m RIB.

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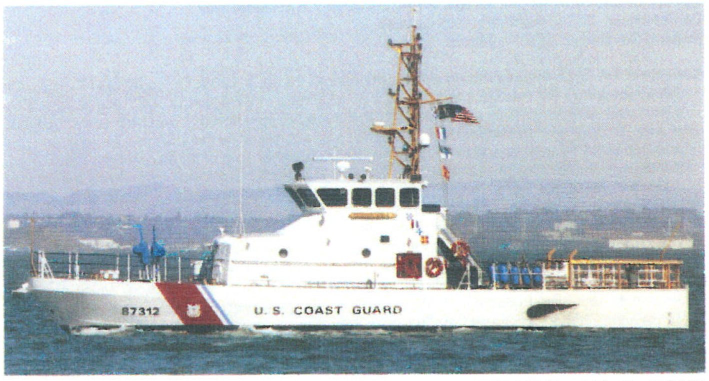
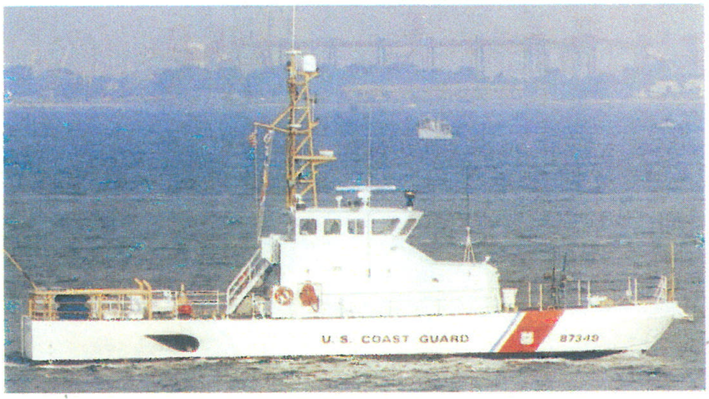


HAWKSBILL *10/2003*, Frank Findler* / 0572757



SHEARWATER *7/2003*, Jürg Kürsener* / 0572756

SEAGOING TENDERS

2 BALSAM CLASS (BUOY TENDERS—WLB/ABU)

Name	*No*	*Launched*	*F/S*
A Series			
GENTIAN	WIX 290	1942	AA
C Series			
ACACIA	WLB 406	1944	GLA

Displacement, tons: 757 standard; 1,034 full load
Dimensions, feet (metres): 180 × 37 × 12 *(54.9 × 11.3 × 3.8)*
Main machinery: Diesel-electric; 2 diesels; 1,402 hp *(1.06 MW)* or 1,800 hp *(1.34 MW)* (404); 1 motor; 1,200 hp *(895 kW)*; 1 shaft; bow thruster (except in 395 and 396)
Speed, knots: 13. **Range, miles:** 8,000 at 12 kt
Complement: 53 (6 officers)
Guns: 2—12.7 mm MGs (except 392, 406 and 404).
Radars: Navigation: Raytheon SPS-64(V)1; I-band.

Comment: Seagoing buoy tenders. Built by Marine Iron & Shipbuilding Co, Duluth, Minnesota, or Zenith Dredge Co, Duluth, Minnesota. Completed 1943-45. Have 20 ton capacity booms.

Acacia underwent major renovation in the late 1970s. *Gentian* brought back into service on 27 July 1999 to support former USCG craft transferred to Caribbean countries. The ship has a complement of 45 including people from eight different countries. *Bramble* decommissioned in 2003 and transferred to Historical Society for The Great Lakes. *Acacia* is to decommission in 2006.

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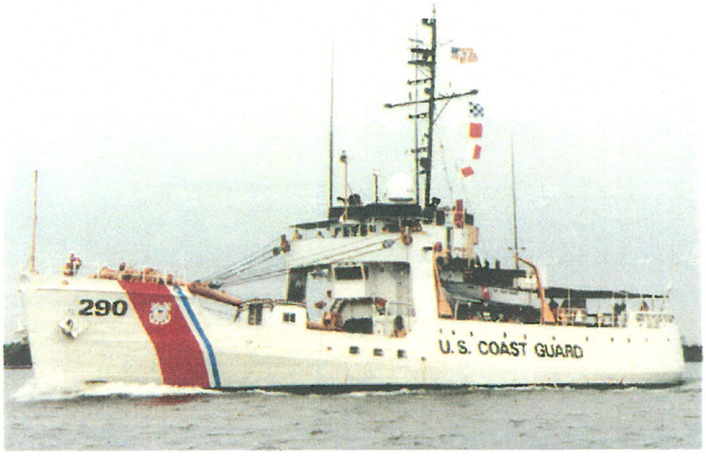

GENTIAN *7/1999, USCG* / 0084209

15 + 1 JUNIPER CLASS (BUOY TENDERS—WLB/ABU)

Name	*No*	*Builders*	*Commissioned*	*Home Port*
JUNIPER	WLB 201	Marinette Marine	10 Apr 1997	Newport, RI
WILLOW	WLB 202	Marinette Marine	10 Apr 1997	Newport, RI
KUKUI	WLB 203	Marinette Marine	1 Sep 1998	Honolulu, HI
ELM	WLB 204	Marinette Marine	20 Nov 1998	Atlantic Beach, NC
WALNUT	WLB 205	Marinette Marine	22 Feb 1999	Honolulu, HI
SPAR	WLB 206	Marinette Marine	9 Mar 2001	Kodiak, AK
MAPLE	WLB 207	Marinette Marine	7 June 2001	Sitka, AK
ASPEN	WLB 208	Marinette Marine	30 Sep 2001	San Francisco, CA
SYCAMORE	WLB 209	Marinette Marine	1 Mar 2002	Cordova, AK
CYPRESS	WLB 210	Marinette Marine	24 June 2002	Mobile, AL
OAK	WLB 211	Marinette Marine	17 Oct 2002	Charleston, SC
HICKORY	WLB 212	Marinette Marine	Mar 2003	Homer, AK
FIR	WLB 213	Marinette Marine	June 2003	Astoria, OR
HOLLYHOCK	WLB 214	Marinette Marine	3 Oct 2003	Port Huron, MI
SEQUOIA	WLB 215	Marinette Marine	Apr 2004	Apra Harbour, Guam
ALDER	WLB 216	Marinette Marine	Sep 2004	Duluth, MN

Displacement, tons: 2,032 full load
Dimensions, feet (metres): 225 × 46 × 13 *(68.6 × 14 × 4)*
Main machinery: 2 Caterpillar 3608 diesels; 6,200 hp *(4.6 MW)* sustained; 1 shaft; cp prop; bow; 460 hp *(343 kW)* and stern; 550 hp *(410 kW)* thrusters
Speed, knots: 15. **Range, miles:** 6,000 at 12 kt
Complement: 40 (6 officers)
Guns: 1—25 mm/87 Mk 38; 2—12.7 mm MGs.
Radars: Navigation: 2 Sperry/Litton BridgeMaster E340; I-band.

Comment: On 18 February 1993, the Coast Guard awarded Marinette Marine of Marinette, WI, a contract to construct the first of a new class of seagoing buoy tenders. Capable of breaking 14 in of ice at 3 kt or a minimum of 3 ft by ramming. Main hoist can lift 20 tons, secondary 5 tons. The class is named after the first *Juniper*, which was built in 1940 and decommissioned in 1975.

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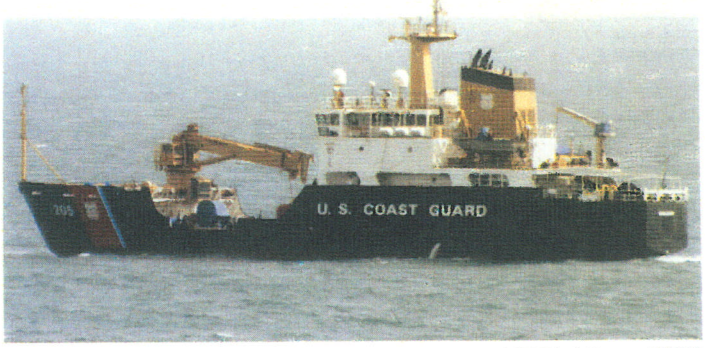

WALNUT *4/2003*, A Sharma* / 0572755

COASTAL TENDERS

14 KEEPER CLASS (BUOY TENDERS—WLM/ABU)

Name	*No*	*Builders*	*Commissioned*	*Home Port*
IDA LEWIS	WLM 551	Marinette Marine	1 Nov 1996	Newport, RI
KATHERINE WALKER	WLM 552	Marinette Marine	27 June 1997	Bayonne, NJ
ABIGAIL BURGESS	WLM 553	Marinette Marine	19 Sep 1997	Rockland, ME
MARCUS HANNA	WLM 554	Marinette Marine	26 Nov 1997	South Portland, ME
JAMES RANKIN	WLM 555	Marinette Marine	26 Aug 1998	Baltimore, MD
JOSHUA APPLEBY	WLM 556	Marinette Marine	20 Nov 1998	St Petersburg, FL
FRANK DREW	WLM 557	Marinette Marine	17 June 1999	Portsmouth, VA
ANTHONY PETIT	WLM 558	Marinette Marine	1 July 1999	Ketchikan, AK
BARBARA MABRITY	WLM 559	Marinette Marine	29 July 1999	Mobile, AL
WILLIAM TATE	WLM 560	Marinette Marine	16 Sep 1999	Philadelphia, PA
HARRY CLAIBORNE	WLM 561	Marinette Marine	28 Oct 1999	Galveston, TX
MARIA BRAY	WLM 562	Marinette Marine	6 Apr 2000	Mayport, FL
HENRY BLAKE	WLM 563	Marinette Marine	18 May 2000	Everett, WA
GEORGE COBB	WLM 564	Marinette Marine	22 June 2000	San Pedro, CA

Displacement, tons: 840 full load
Dimensions, feet (metres): 175 × 36 × 7.9 *(53.3 × 11 × 2.4)*
Main machinery: 2 Caterpillar 3508TA diesels; 1,920 hp *(1.43 MW)* sustained; 2 Ulstein Z-drives; bow thruster; 460 hp *(343 kW)*
Speed, knots: 12. **Range, miles:** 2,000 at 10 kt
Complement: 18 (1 officer)
Radars: Navigation: Raytheon SPS-64; I-band.

Comment: Contract awarded 22 June 1993 for first of class with an option for 13 more. Capable of breaking 9 in of ice at 3 kt or 18 in by ramming. Named after Lighthouse Keepers for the Lighthouse Service, one of the predecessors of the modern Coast Guard. The ship is a scaled down model of the 'Juniper' class for coastal service. Main hoist to lift 10 tons, secondary 3.75 tons. Able to skim and recover surface oil pollution using a vessel of opportunity skimming system.
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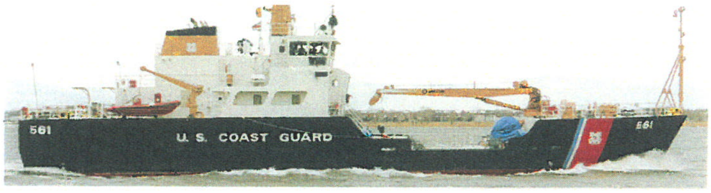


HARRY CLAIBORNE *2/2000, van Ginderen Collection* / 0105729

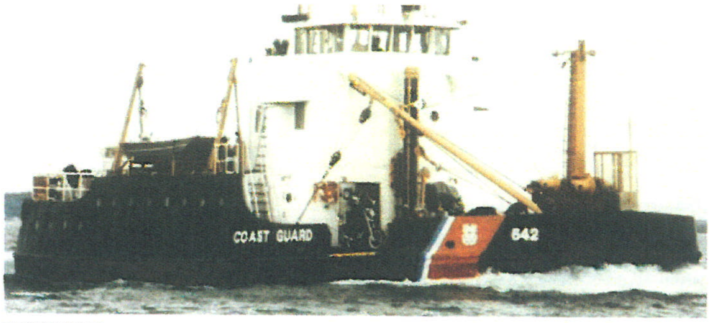
BUOY TENDERS (INLAND—WLI)

2 BUOY TENDERS (WLI/ABU)

Name	*No*	*Builders*	*Launched*	*Home Port*
BLUEBELL	WLI 313	Birchfield Shipyard, Tacoma	28 Sep 1944	Portland, OR
BUCKTHORN	WLI 642	Mobile Shipyard, Mobile	18 Aug 1963	Sault Sainte Marie, MI

Displacement, tons: 226 (174 *Bluebell*) full load
Dimensions, feet (metres): 100 × 24 × 5 *(30.5 × 7.3 × 1.5)* (*Buckthorn* draught 4 *(1.2)*)
Main machinery: 2 Caterpillar diesels; 600 hp *(448 kW)*; 2 shafts
Speed, knots: 11.9; 10.5 *(Bluebell)*
Complement: 14 (1 officer)

Comment: Different vintage but similar in design. ***UPDATED***



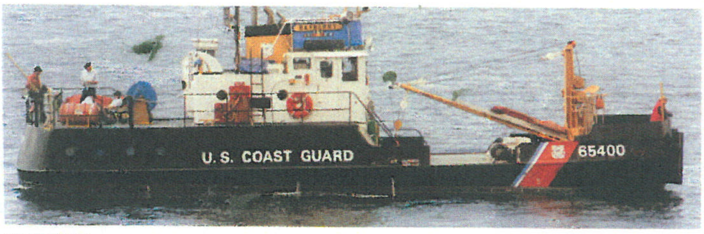
BUCKTHORN *3/2000, US Coast Guard* / 0084213

3 BUOY TENDERS (WLI/ABU)

Name	*No*	*Builders*	*Home Port*
BLACKBERRY	WLI 65303	Dubuque Shipyard, Iowa	Fort Macon, GA
BAYBERRY	WLI 65400	Reliable Shipyard, Olympia	Seattle, WA
ELDERBERRY	WLI 65401	Reliable Shipyard, Olympia	Petersburg, AK

Displacement, tons: 70 full load
Dimensions, feet (metres): 65 × 17 × 4 *(19.8 × 5.2 × 1.2)*
Main machinery: 1 or 2 *(Bayberry* and *Elderberry)* GM diesels; 1 or 2 shafts
Speed, knots: 10
Complement: 8

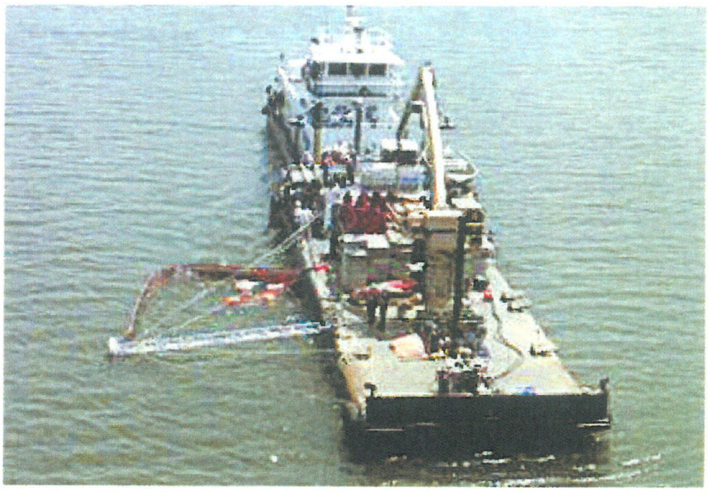
Comment: First one completed in August 1946, two in June 1954. ***UPDATED***



BAYBERRY *5/1999, Hartmut Ehlers* / 0084211

BUOY TENDERS (RIVER) (WLR)

Notes: (1) All are based on rivers of USA especially the Mississippi and the Missouri and its tributaries.
(2) Two ATON (aids to navigation) barges completed in 1991-92 by Marinette Marine. For use on the Great Lakes in conjunction with icebreaker tugs *Bristol Bay* and *Mobile Bay*.



WLR *2001, USCG* / 0131379

18 BUOY TENDERS (WLR)

WEDGE WLR 75307
GASCONADE WLR 75401
MUSKINGUM WLR 75402
WYACONDA WLR 75403
CHIPPEWA WLR 75404
CHEYENNE WLR 75405
GREENBRIAR WLR 75501
KICKAPOO WLR 75406
KANAWHA WLR 75407
PATOKA WLR 75408
CHENA WLR 75409
KANKAKEE WLR 75500
SANGAMON WLR 65506
OUACHITA WLR 65501
SCIOTO WLR 65504
CIMARRON WLR 65502
OSAGE WLR 65505
OBION WLR 65503

Displacement, tons: 145 full load
Dimensions, feet (metres): 75 × 22 × 4 *(22.9 × 6.7 × 1.2)*
Main machinery: 2 Caterpillar diesels; 660 hp *(492 kW)*; 2 shafts
Speed, knots: 9. **Range, miles:** 3,100 at 8 kt
Complement: 19

Comment: WLR 75401-09 built 1964-70 and WLR 65501-06 in 1960-62. WLR 75500-01 were completed in early 1990 and more of this type may be built. Details given are for the WLR 75401 series, but all are much the same size.
VERIFIED

TRAINING CUTTERS

Notes: *Gentian* WIX 290 is listed under 'Balsam' class.

1 EAGLE CLASS (WIX/AXS)

Name	*No*	*Builders*	*Commissioned*	*Home Port*
EAGLE (ex-*Horst Wessel*)	WIX 327	Blohm + Voss, Hamburg	15 May 1946	New London, CT

Displacement, tons: 1,816 full load
Dimensions, feet (metres): 231 wl; 293.6 oa × 39.4 × 16.1 *(70.4; 89.5 × 12 × 4.9)*
Main machinery: 1 Caterpillar D 399 auxiliary diesel; 1,125 hp *(839 kW)* sustained; 1 shaft
Speed, knots: 10.5; 18 sail. **Range, miles:** 5,450 at 7.5 kt diesel only
Complement: 245 (19 officers, 180 cadets)
Radars: Navigation: SPS-73; I-band.

Comment: Former German training ship. Launched on 13 June 1936. Taken by the US as part of reparations after the Second World War for employment in US Coast Guard Practice Squadron. Taken over at Bremerhaven in January 1946; arrived at home port of New London, Connecticut, in July 1946. (Sister ship *Albert Leo Schlageter* was also taken by the USA in 1945 but was sold to Brazil in 1948 and re-sold to Portugal in 1962. Another ship of similar design, *Gorch Fock*, transferred to the USSR in 1946 and survives as *Tovarisch*.) *Eagle* was extensively overhauled 1981-82. When the Coast Guard added the orange-and-blue marking stripes to cutters in the 1960s *Eagle* was exempted because of their effect on her graceful lines; however, in early 1976 the stripes and words 'Coast Guard' were added in time for the July 1976 Operation Sail in New York harbour. During the Coast Guard's year long bicentennial celebration, which ended 4 August 1990, *Eagle* visited each of the 10 ports where the original revenue cutters were homeported: Baltimore, Maryland; New London, Connecticut; Washington, North Carolina; Savannah, Georgia; Philadelphia, Pennsylvania; Newburyport, Maryland; Portsmouth, New Hampshire; Charleston, South Carolina; New York, New York; and Hampton, Virginia. The cutter currently serves as a training ship for cadets and officer candidates.

Fore and main masts 150.3 ft *(45.8 m)*; mizzen 132 ft *(40.2 m)*; sail area, 25,351 sq ft.
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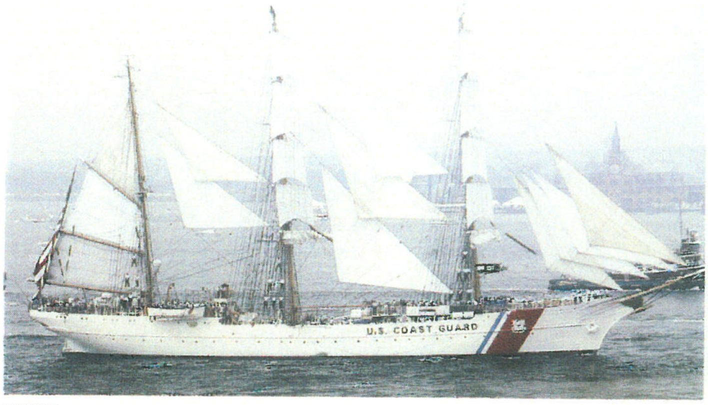


EAGLE *7/2000, van Ginderen Collection* / 0105730

CONSTRUCTION TENDERS (INLAND) (WLIC)

Notes: All, although operating on inland waters, are administered by the Atlantic Area.

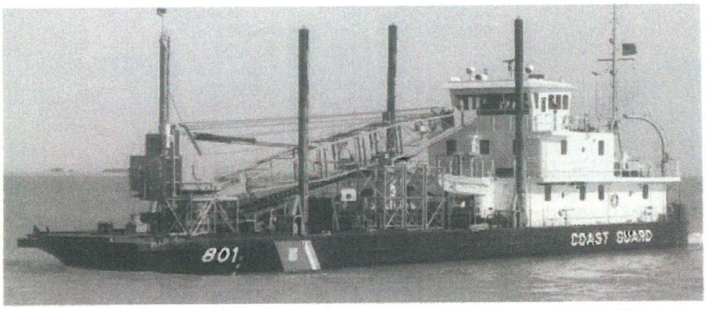
4 PAMLICO CLASS (WLIC)

PAMLICO WLIC 800
HUDSON WLIC 801
KENNEBEC WLIC 802
SAGINAW WLIC 803

Displacement, tons: 459 full load
Dimensions, feet (metres): 160.9 × 30 × 4 *(49 × 9.1 × 1.2)*
Main machinery: 2 Caterpillar diesels; 1,000 hp *(746 kW)*; 2 shafts
Speed, knots: 11.5
Complement: 14 (1 officer)
Radars: Navigation: Raytheon SPS-69; I-band.

Comment: Completed in 1976 at the Coast Guard Yard, Curtis Bay, Maryland. These ships maintain structures and buoys in bay areas along the Atlantic and Gulf coasts.

VERIFIED



HUDSON *12/1989, Giorgio Arra*

1 COSMOS CLASS (WLIC)

SMILAX WLIC 315

Displacement, tons: 218 full load
Dimensions, feet (metres): 100 × 24 × 5 *(30.5 × 7.3 × 1.5)*
Main machinery: 2 Caterpillar D 353 diesels; 660 hp *(492 kW)* sustained; 2 shafts
Speed, knots: 10.5
Complement: 14 (1 officer)
Radars: Navigation: Raytheon SPS-69; I-band.

Comment: Completed in 1944. Primary areas of operation are intercoastal waters from Virginia to Georgia. Based at Fort Macon, GA.

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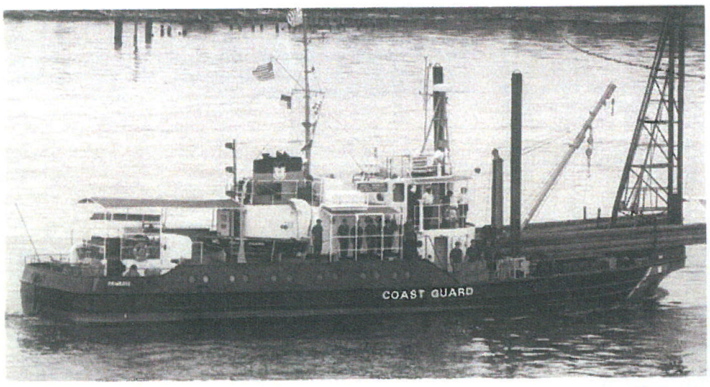

COSMOS *7/1990, van Ginderen Collection*

8 ANVIL/CLAMP CLASSES (WLIC)

ANVIL WLIC 75301
HAMMER WLIC 75302
SLEDGE WLIC 75303
MALLET WLIC 75304
VISE WLIC 75305
CLAMP WLIC 75306
HATCHET WLIC 75309
AXE WLIC 75310

Displacement, tons: 145 full load
Dimensions, feet (metres): 75 (76-WLIC 75306-75310) × 22 × 4 *(22.9 (23.2) × 6.7 × 1.2)*
Main machinery: 2 Caterpillar diesels; 750 hp *(559 kW)*; 2 shafts
Speed, knots: 10
Complement: 13 (1 officer in *Mallet, Sledge* and *Vise)*

Comment: Completed 1962-65. Primary areas of operation are intercoastal waters from Texas to New Jersey.

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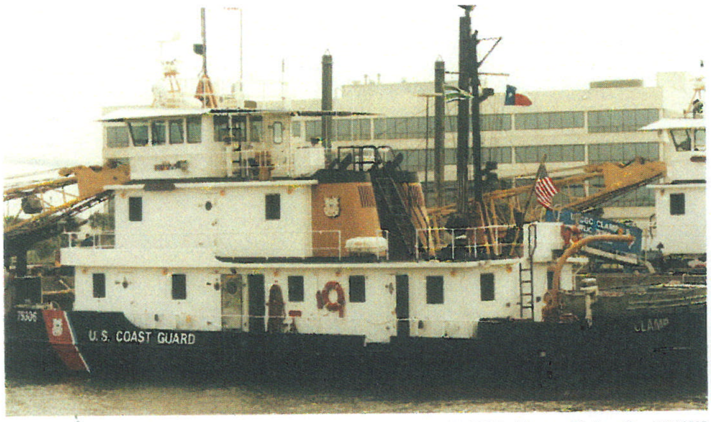


CLAMP *10/1999, Marsan/Schaeffer* / 0084215

HARBOUR TUGS

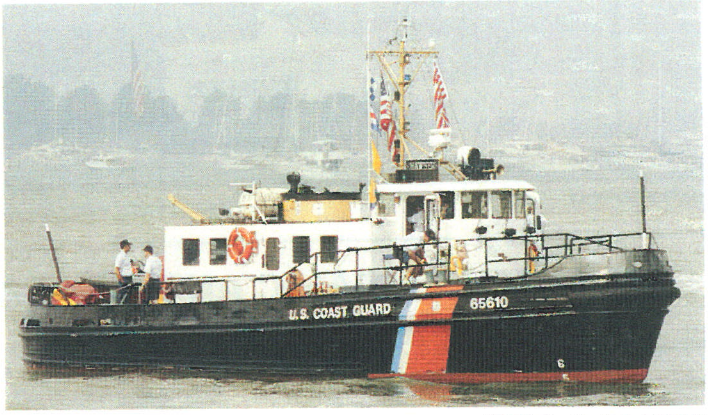
11 65 ft CLASS (WYTL)

CAPSTAN WYTL 65601
CHOCK WYTL 65602
TACKLE WYTL 65604
BRIDLE WYTL 65607
PENDANT WYTL 65608
SHACKLE WYTL 65609
HAWSER WYTL 65610
LINE WYTL 65611
WIRE WYTL 65612
BOLLARD WYTL 65614
CLEAT WYTL 65615

Displacement, tons: 72 full load
Dimensions, feet (metres): 65 × 19 × 7 *(19.8 × 5.8 × 2.1)*
Main machinery: 1 Caterpillar 3412TA diesel; 400 hp *(298 kW)* sustained; 1 shaft
Speed, knots: 10. **Range, miles:** 850 at 10 kt
Complement: 6
Radars: Navigation: Raytheon SPS-69; I-band.

Comment: Built between 1961 and 1967. All active in the Atlantic Fleet. Re-engined 1993-96.

VERIFIED



HAWSER *7/2000, Hachiro Nakai* / 0105731

RESCUE AND UTILITY CRAFT

Notes: Craft of several different types. All carry five or six figure numbers of which the first two figures reflect the craft's length in feet.

384 UTILITY BOATS (YAG)

Displacement, tons: 15 full load
Dimensions, feet (metres): 41.3 × 14.1 × 4.1 *(12.6 × 4.3 × 1.3)*
Main machinery: 2 diesels; 636 hp *(474 kW)* sustained; 2 shafts
Speed, knots: 26. **Range, miles:** 300 miles at 18 kt
Complement: 3

Comment: Built by Coast Guard Yard, Baltimore 1973-83. Aluminium hull with a towing capacity of 100 tons. Used for fast multimission response in weather conditions up to moderate.

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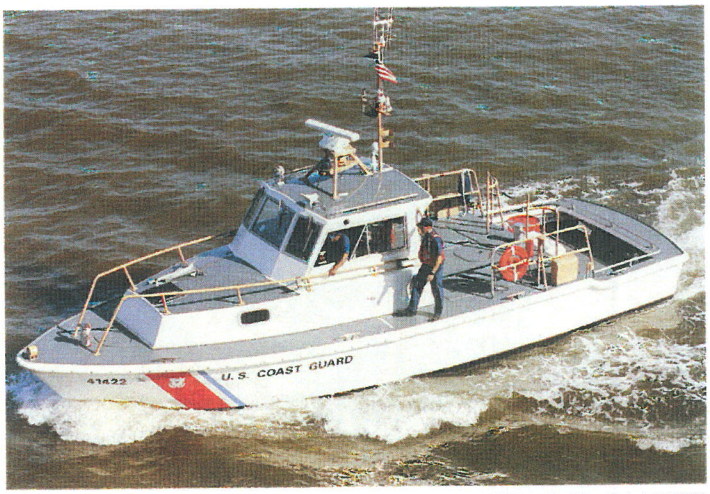
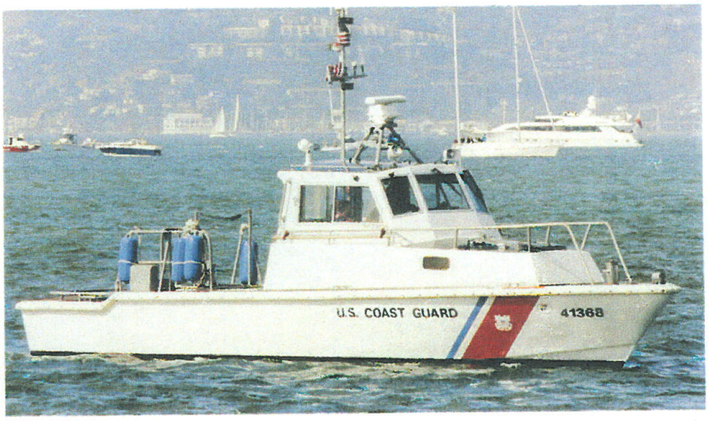


41422 *7/2000, Hachiro Nakai* / 0105732



41368 *10/2002, Frank Findler* / 0529902

117 MOTOR LIFEBOATS (SAR)

Displacement, tons: 20 full load
Dimensions, feet (metres): 47.9 × 14.5 × 4.5 *(14.6 × 4.4 × 1.4)*
Main machinery: 2 Detroit diesels; 850 hp *(634 kW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 220 at 25 kt
Complement: 4

Comment: Built by Textron Marine, New Orleans. The prototype completed trials in mid-1991. Five production boats delivered in 1994. More ordered in September 1995. Replaced the fleet of 44 ft lifeboats. Aluminium hulls, self-righting with a 9,000 lb bollard pull and a towing capability of 150 tons. Primarily a lifeboat but it has a multimission capability.

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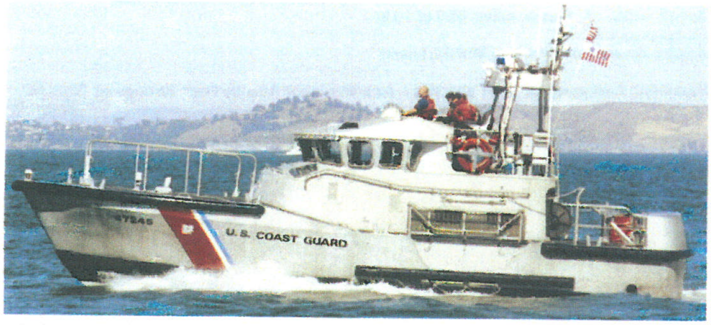
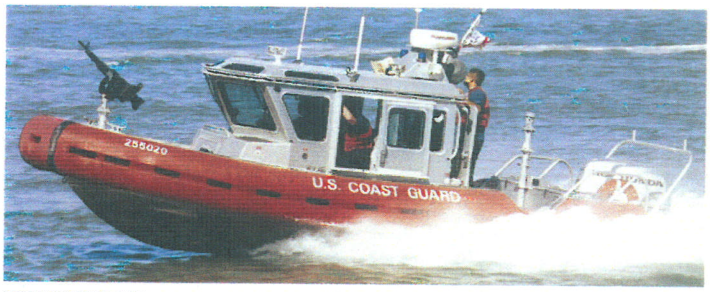


MOTOR LIFEBOAT *10/2003*, Frank Findler* / 0572754

133 + 130 DEFENDER CLASS (RESPONSE BOATS) (PBF)

Displacement, tons: 2.7 full load
Dimensions, feet (metres): 25.0 × 8.5 × 8.8 *(7.6 × 2.6 × 2.7)*
Main machinery: 2 Honda outboard motors; 450 hp *(335 kW)*
Speed, knots: 46. **Range, miles:** 175 at 35 kt
Complement: 4
Guns: 1—12.7 mm MG.
Radars: To be announced.

Comment: High-speed inshore patrol craft of aluminium construction and foam collar built by SAFE Boats International, Port Orchard, Washington. First delivery in July 2003 to replace nearly 300 non-standard shore based boats and provide a standardised platform for the USCG's new Maritime Safety and Security Teams (MSST), established as a result of the 11 September 2001 terrorist attacks. Up to 700 may be procured by 2010. Transportable in a C-130. ***NEW ENTRY***



DEFENDER CLASS *10/2003*, Frank Findler* / 0572753

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)

Headquarters Appointments

Under Secretary of Commerce for Oceans and Atmosphere:
Vice Admiral Conrad Lautenbacher Jr USN (ret)
Director, NOAA Marine and Aviation Operations:
appointment pending
Director, Marine Operations Center/Aviation Operations Centre:
appointment pending

Establishment and Missions

NOAA is the largest bureau of the US Department of Commerce, with a diverse set of responsibilities in environmental sciences. NOAA components include NOAA Marine and Aviation Operations; the National Ocean Service; the National Weather Service; the National Marine Fisheries Service; the National Environmental Satellite, Data and Information Service; and the office of Oceanic and Atmospheric Research. NOAA's research vessels conduct operations in hydrography, bathymetry, oceanography, atmospheric research, fisheries assessments and research, and related programmes in marine resources. Larger research vessels operate in international waters, and smaller ones primarily in Atlantic and Pacific coastal waters, and the Gulfs of Mexico and Alaska. NOAA conduct diving operations. It also operates fixed-wing and rotary aircraft for reconnaissance, oceanographic and atmospheric research, and in support of aerial mapping and charting and hurricane research.

NOAA's fleet remains at 15 ships, although several have been replaced with newer former Navy ships in recent years. A new oceanographic research ship, *Ronald H Brown* (ex-AGOR 26), was commissioned in 1997; four ex-naval T-AGOS ships have been acquired and converted for oceanographic research *(Ka'imimoana)*, fisheries research *(Gordon Gunter, Oscar Elton Sette)*, and coastal oceanographic research *(McArthur II)*. *Sette* replaced *Townsend Cromwell* and *McArthur II* replaced *McArthur* in 2003. The former naval T-AGOS ship *Vindicator* is to be converted for coastal research in 2004, renamed *Hi'ialakai*, and homeported in Hawaii. The former naval T-AGS hydrographic survey ship *Littlehales* was transferred to NOAA in 2003 and recommissioned *Thomas Jefferson*, replacing *Whiting*. A former naval YTT (Yard Torpedo Test) vessel was converted for coastal research and became operational in 2003 as *Nancy Foster*, replacing *Ferrel*. NOAA's decommissioned hydrographic survey ship *Fairweather* is being refurbished and is to be reactivated in 2004. A new class of fisheries survey vessels has been designed to NOAA specifications and international standards. *Oscar Dyson*, the first of four planned FSVs, was launched in October 2003 and will become operational in 2004. Construction started in October 2003 on the second FSV, which is expected to become operational in 2007. A contract for design and construction of a new SWATH (Small Waterplane Area Twin Hull) vessel is to be awarded in early 2004.

Ships

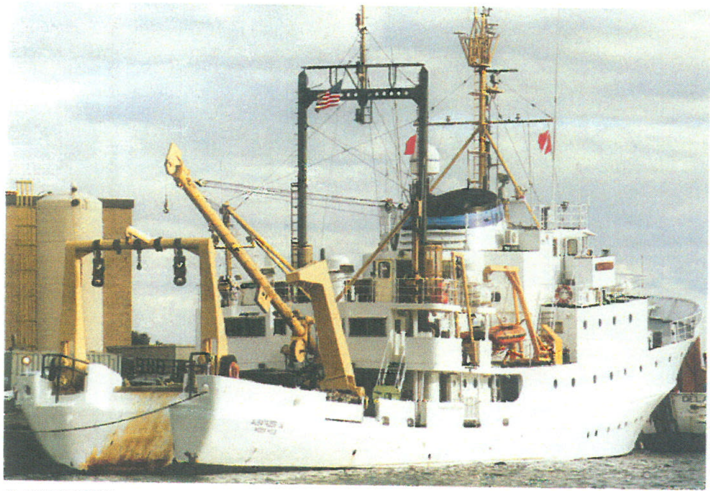
The following ships may be met with at sea.
Oceanographic Research Ships: *Ronald H Brown, Ka'imimoana.*
Multipurpose Oceanographic/Coastal Research Ships: *McArthur II, Nancy Foster, Hi'ialakai*
Hydrographic Survey Ships: *Rainier, Rude, Thomas Jefferson.*
Fisheries Research Ships: *Miller Freeman, Oregon II, Albatross IV, Delaware II, David Starr Jordan, John N Cobb, Gordon Gunter, Oscar Elton Sette.*

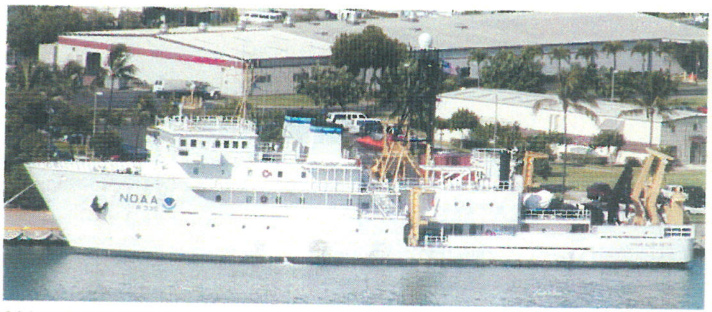
Personnel

2004: 257 officers plus 12,000 civilians.

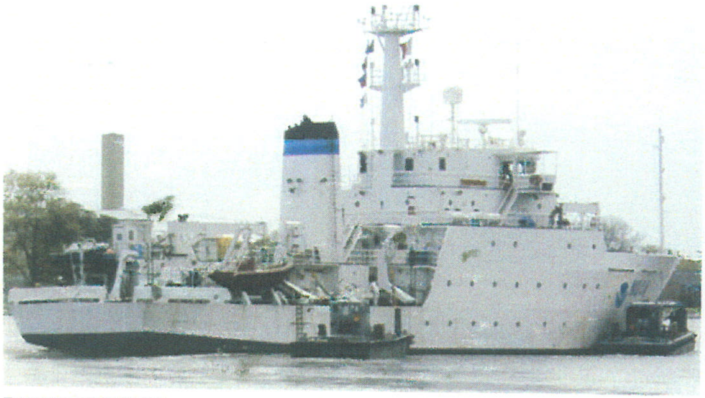
Bases

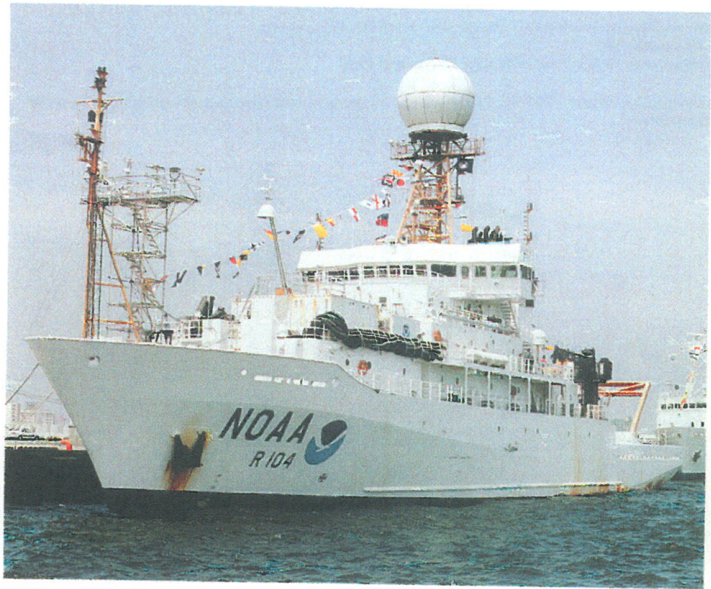
Major: Norfolk, VA and Seattle, WA.
Minor: Woods Hole, MA; Pascagoula, MS; Honolulu, HI; Charleston, SC; San Diego, CA.


ALBATROSS IV *10/1997, Harald Carstens* / 0053484



OSCAR ELTON SETTE *6/2002, NOAA* / 0543400


THOMAS JEFFERSON *6/2003*, NOAA* / 0572818



RONALD H BROWN *4/2001, Kazumasa Watanabe* / 0131305

Uruguay

Country Overview

The Oriental Republic of Uruguay is situated in south-eastern South America. With an area of 68,037 square miles it has borders to the north with Brazil and to the west with Argentina. It has a coastline of 356 n miles with the south Atlantic Ocean and River Plate. There are some 675 n miles of navigable internal waterways. The capital, largest city and principal port is Montevideo. Territorial Seas (12 n miles) and an EEZ (200 n miles) are claimed.

Headquarters Appointments

Commander-in-Chief of the Navy:
Vice Admiral Carlos Alberto Giani Ferreri
Commander Sea Forces:
Rear Admiral Carlos Rafael Magliocca Thölke

Diplomatic Representation

Naval Attaché in London:
Captain Raúl Lerena

Personnel

(a) 2004: 5,700 (700 officers) (including 450 naval infantry, 300 naval air and 1,950 Coast Guard)
(b) Voluntary service

Prefectura Nacional Naval (PNN)

Established in 1934 primarily for harbour security and coastline guard duties. In 1991 it was integrated with the Navy, although patrol craft retain Prefectura markings. There are three regions: Atlantic, Rio de la Plata, and Rio Uruguay.

Bases

Montevideo: Main naval base with two dry docks (A new naval base is under construction at Punta Lobos and will replace the current harbour facilities.)
La Paloma: Naval station *(Ernesto Motto)*
Paysandu: River base
Laguna del Sauce, Maldonado: Naval air station *(Capitan Carlos A Curbelo)*

Marines

Cuerpo de Fusileros Navales consisting of 450 men in three units plus a command company of 100.

Prefix to Ships' Names

ROU

DELETIONS

Survey and Research Ships

2002 *Comandante Pedro Campbell*

FRIGATES

3 COMMANDANT RIVIÈRE CLASS (FF)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*	*Recommissioned*
URUGUAY (ex-*Commandant Bourdais*)	1	Lorient Naval Dockyard	Apr 1959	15 Apr 1961	10 Mar 1962	20 Aug 1990
GENERAL ARTIGAS (ex-*Victor Schoelcher*)	2	Lorient Naval Dockyard	Oct 1957	11 Oct 1958	15 Oct 1962	9 Jan 1989
MONTEVIDEO (ex-*Amiral Charner*)	3 (ex-4)	Lorient Naval Dockyard	Nov 1958	12 Mar 1960	14 Dec 1962	28 Jan 1991

Displacement, tons: 1,750 standard; 2,250 full load
Dimensions, feet (metres): 336.9 × 38.4 × 14.1 *(102.7 × 11.7 × 4.3)*
Main machinery: 4 SEMT-Pielstick 12 PC series diesels; 16,000 hp(m) *(11.8 MW)*; 2 shafts
Speed, knots: 25. **Range, miles:** 7,500 at 15 kt
Complement: 159 (9 officers)

Guns: 2 DCN 3.9 in *(100 mm)*/55 Mod 1953 automatic; dual purpose; 60 rds/min to 17 km *(9 n miles)* anti-surface; 8 km *(4.4 n miles)* anti-aircraft; weight of shell 13.5 kg.
2 Hispano-Suiza 30 mm/70.
Torpedoes: 6—21.7 in *(550 mm)* (2 triple) tubes ECAN L3; anti-submarine; active homing to 5.5 km *(3 n miles)* at 25 kt; warhead 200 kg; depth to 300 m *(985 ft)*.
Countermeasures: ESM: NS 9010-UR; radar warning.
Weapons control: C T Analogique. Sagem DMAA optical director.
Radars: Air/surface search: Thomson-CSF DRBV 22A; D-band.
Navigation: Racal Decca 1226; I-band.
Fire control: Thomson-CSF DRBC 32C; I-band.
Sonars: EDO SQS-17; hull-mounted; active search; medium frequency.
Thomson Sintra DUBA 3; active attack; high frequency.

Programmes: First one bought from France through SOFMA on 30 September 1988, second pair 14 March 1990. All refitted before transfer.
Structure: Exocet and Dagaie removed before transfer. SSM casings removed during refit 1999/2000.
Operational: Can carry a Flag Officer and staff. In French service this class sometimes embarked up to 80 soldiers and two LCPs. The A/S mortar is non-operational. *Uruguay* was in refit 2000-2003.

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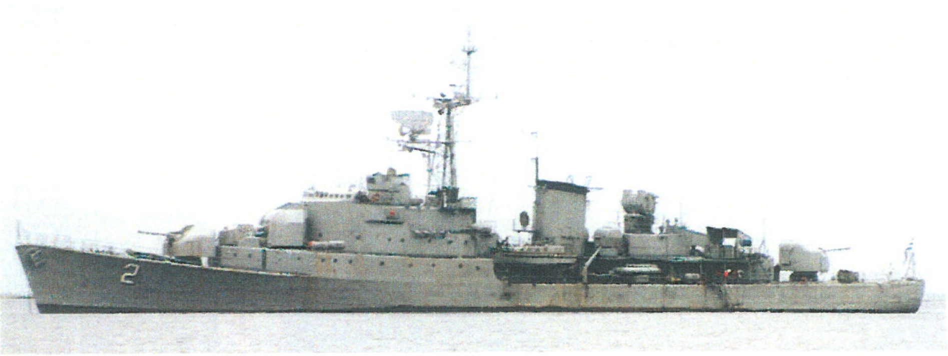
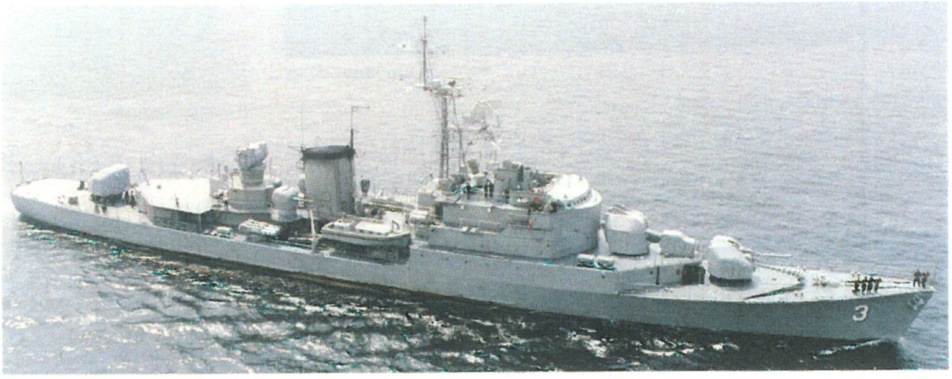
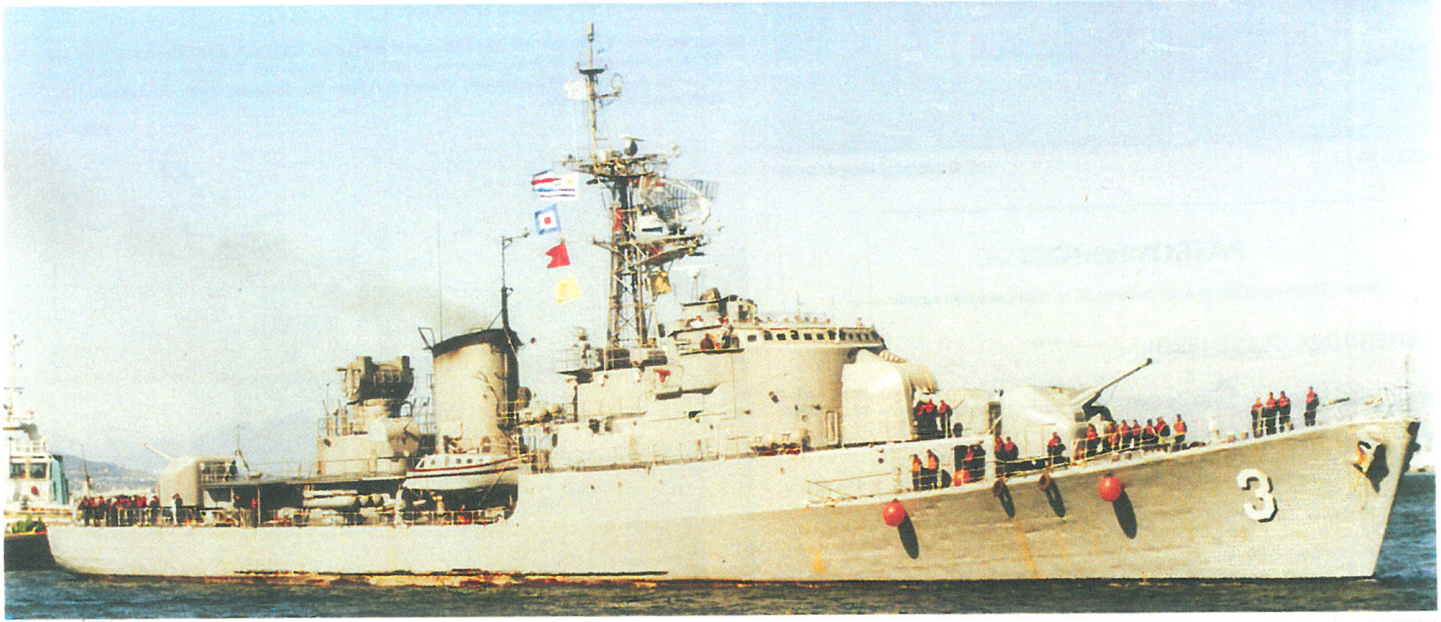

GENERAL ARTIGAS *2/2003*, A E Galarce* / 0569797


MONTEVIDEO *10/2002, Mario R V Carveiro* / 0534050


MONTEVIDEO *3/2002, Robert Pabst* / 0534051

LAND-BASED MARITIME AIRCRAFT

Notes: (1) There are plans to acquire a CN-235 Persuader maritime patrol aircraft which would complement the two Beech B 200Ts in service.
(2) In addition there are four helicopters (three Westland Wessex HC Mk 2 and one Wessex W-60). There are also three fixed-wing aircraft, two Beech T-34C and two Jetstream T2. The latter were bought from the UK in 1998.

WESSEX *2/2003*, A E Galarce* / 0569796

JET STREAM *2001, Uruguay Navy* / 0121423

B-200T *2001, Uruguay Navy* / 0121422

Numbers/Type: 1 Grumman S-2G Tracker.
Operational speed: 140 kt *(260 km/h)*.
Service ceiling: 25,000 ft *(7,620 m)*.
Range: 1,350 n miles *(2,500 km)*.
Role/Weapon systems: ASW and surface search with improved systems. Sensors: Search radar, MAD, sonobuoys. Weapons: ASW; torpedoes, depth bombs or mines. ASV; rockets underwing.

VERIFIED

GRUMMAN S-2G *2000, Uruguay Navy* / 0105735

PATROL FORCES

Notes: There are plans to acquire three 35 m offshore patrol vessels.

1 WANGEROOGE CLASS (PBO)

Name	*No*	*Builders*	*Commissioned*
MALDONADO (ex-*Norderney*)	23 (ex-*A 1455*)	Schichau, Bremerhaven	15 Oct 1970

Displacement, tons: 854 standard; 1,024 full load
Dimensions, feet (metres): 170.6 × 39.4 × 12.8 *(52 × 12.1 × 3.9)*
Main machinery: Diesel-electric; 4 MWM 16-cyl diesel generators; 2 motors; 2,400 hp(m) *(1.76 MW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 5,000 at 10 kt.
Complement: 24.
Guns: 1 Bofors 40 mm/70 (fitted for).

Comment: Built as a salvage tug with ice-strengthened hull. Transferred from the German Navy on 21 November 2002. Employed on offshore patrol duties.

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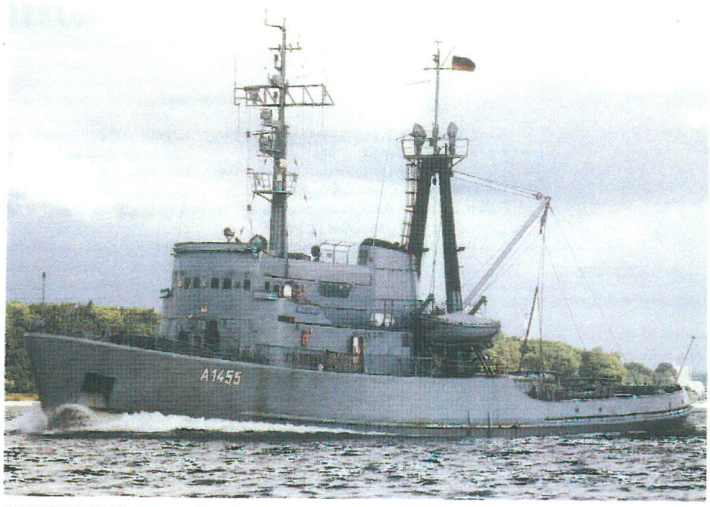

MALDONADO (German colours) *6/2001, Martin Mokrus* / 0130283

3 VIGILANTE CLASS (LARGE PATROL CRAFT) (PBO)

Name	*No*	*Builders*	*Commissioned*
15 de NOVIEMBRE	5	CMN, Cherbourg	25 Mar 1981
25 de AGOSTO	6	CMN, Cherbourg	25 Mar 1981
COMODORO COÉ	7	CMN, Cherbourg	25 Mar 1981

Displacement, tons: 190 full load
Dimensions, feet (metres): 137 × 22.4 × 8.2 *(41.8 × 6.8 × 2.4)*
Main machinery: 2 MTU 12V 538 TB91 diesels; 4,600 hp(m) *(3.4 MW)* sustained; 2 shafts
Speed, knots: 28. **Range, miles:** 2,400 at 15 kt
Complement: 28 (5 officers)
Guns: 1 Bofors 40 mm/70.
Weapons control: CSEE Naja optronic director.
Radars: Surface search: Racal Decca TM 1226C; I-band.

Comment: Ordered in 1979. Steel hull. First launched 16 October 1980, second 11 December 1980 and third 27 January 1981. Based at La Paloma.

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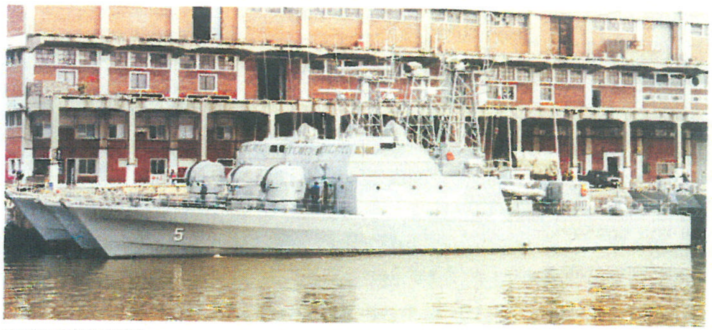

15 DE NOVIEMBRE *7/2001, A E Galarce* / 0534052

2 CAPE CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
COLONIA (ex-*Cape Higgon*)	10	Coast Guard Yard, Curtis Bay	14 Oct 1953
RIO NEGRO (ex-*Cape Horn*)	11	Coast Guard Yard, Curtis Bay	3 Sep 1958

Displacement, tons: 98 standard; 148 full load
Dimensions, feet (metres): 95 × 20.2 × 6.6 *(28.9 × 6.2 × 2)*
Main machinery: 2 GM 16V-149TI diesels; 2,322 hp *(1.73 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 2,500 at 10 kt
Complement: 14 (1 officer)
Guns: 2—12.7 mm MGs.
Radars: Surface search: Raytheon SPS-64; I-band.

Comment: Designed for port security and search and rescue. Steel hulled. During modernisation in 1974 received new engines, electronics and deck equipment. Superstructure modified or replaced, and habitability improved. Transferred from the US Coast Guard 25 January 1990. Both based at Paysandu.

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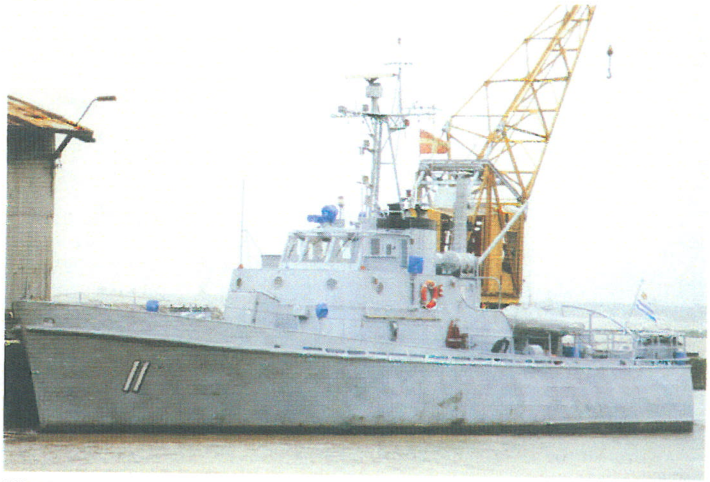

RIO NEGRO *5/2000, Hartmut Ehlers* / 0105736

1 COASTAL PATROL CRAFT (PB)

Name	*No*	*Builders*	*Commissioned*
PAYSANDU	12 (ex-PR 12)	Sewart, USA	Nov 1968

Displacement, tons: 58 full load
Dimensions, feet (metres): 83 × 18 × 6 *(25.3 × 5.5 × 1.8)*
Main machinery: 2 GM 16V-71 diesels; 811 hp *(605 kW)* sustained; 2 shafts
Speed, knots: 22. **Range, miles:** 800 at 20 kt
Complement: 8
Guns: 1—12.7 mm MGs. 2—7.62 mm MGs.
Radars: Surface search: Raytheon 1500B; I-band.

Comment: Formerly incorrectly listed under Coast Guard. Based at Montevideo.

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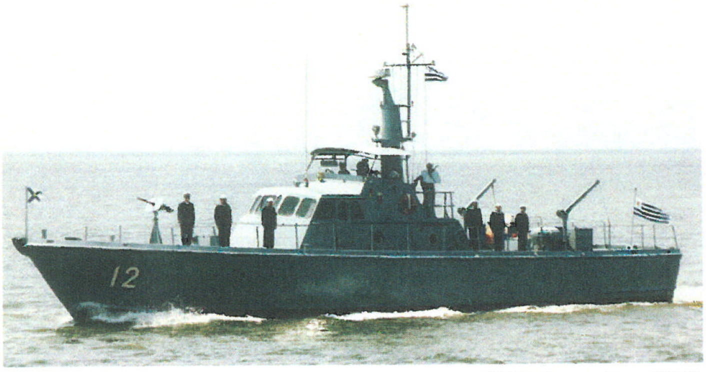
PAYSANDU *6/1999, Uruguay Navy* / 0084221

3 COAST GUARD PATROL CRAFT (WPB)

70 **71** **72**

Displacement, tons: 90 full load
Dimensions, feet (metres): 72.2 × 16.4 × 5.9 *(22 × 5 × 1.8)*
Main machinery: 2 GM diesels; 400 hp *(298 kW)*; 2 shafts
Speed, knots: 12
Complement: 8

Comment: Built in 1957 at Montevideo.

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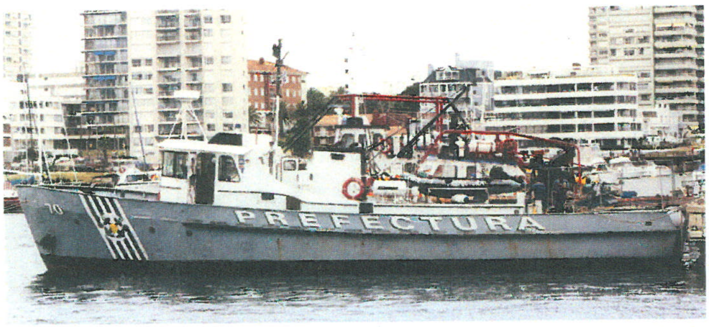
PREFECTURA 70 *2/2003*, A E Galarce* / 0569795

2 RIVER PATROL CRAFT (PBR)

URUGUAY 1 **URUGUAY 2**

Displacement, tons: 5 full load
Dimensions, feet (metres): 38.7 × 11.8 × 3.2 *(11.8 × 3.6 × 1)*
Main machinery: 3 Volvo AD41P 220MOP diesels
Speed, knots: 32. **Range, miles:** 1,500 at 24 kt
Complement: 4
Guns: 2—12.7 mm MGs.

Comment: Built by Nuevos Ayres yacht builders. Deployed to Congo as part of UN force during 2001.

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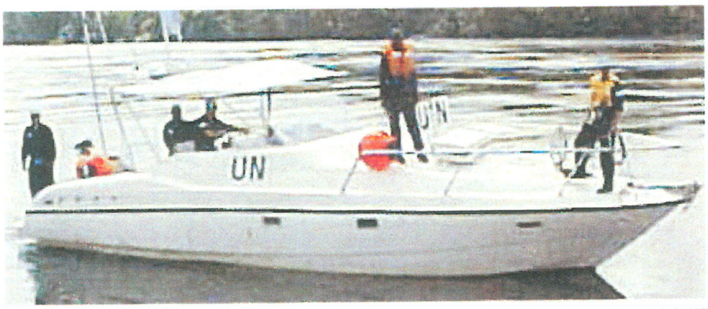
URUGUAY 1 *2001, Uruguay Navy* / 0121420

2 RIVER PATROL CRAFT (PBR)

Displacement, tons: 6 full load
Dimensions, feet (metres): 37.1 × 10.7 × 2.6 *(11.3 × 3.25 × 0.8)*
Main machinery: 2 Volvo Penta diesels
Speed, knots: 32.
Complement: 6
Guns: 3—7.62 mm MGs.

Comment: Built by Astillero KLASE A, Buenos Aires and delivered to Uruguayan Navy in 2002.

VERIFIED

9 TYPE 44 CLASS (WPB)

441-449

Displacement, tons: 18 full load
Dimensions, feet (metres): 44 × 12.8 × 3.6 *(13.5 × 3.9 × 1.1)*
Main machinery: 2 Detroit 6V-38 diesels; 185 hp *(136 kW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 215 at 10 kt
Complement: 3

Comment: Acquired from the US in 1999 and operated by the Coast Guard primarily as SAR craft.

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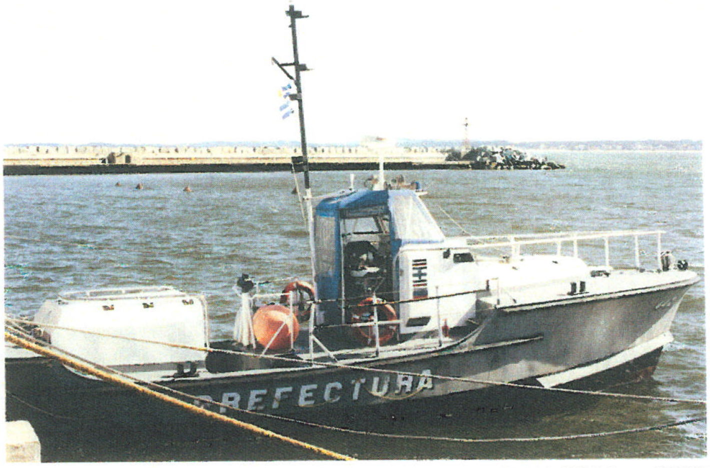
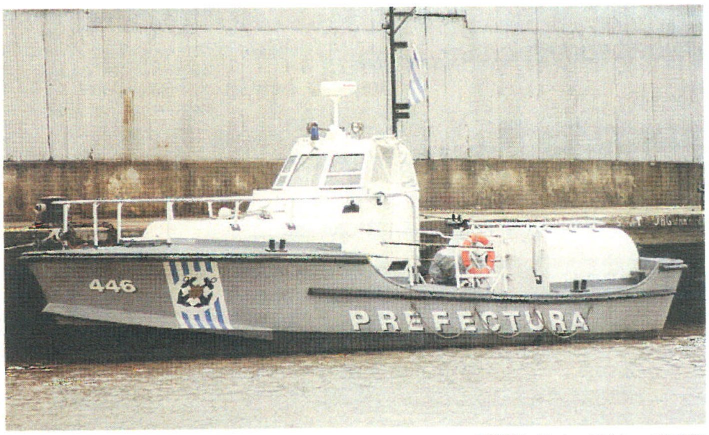

442 *9/2003*, A E Galarce* / 0569793


446 *5/2000, Hartmut Ehlers* / 0105801

MINE WARFARE FORCES

3 KONDOR II CLASS (MINESWEEPERS—COASTAL) (MSC)

Name	*No*	*Builders*	*Launched*	*Recommissioned*
TEMERARIO (ex-*Riesa*)	31	Peenewerft, Wolgast	2 Oct 1972	11 Oct 1991
FORTUNA (ex-*Bernau*)	33	Peenewerft, Wolgast	3 Aug 1972	11 Oct 1991
AUDAZ (ex-*Eisleben*)	34	Peenewerft, Wolgast	2 Jan 1973	11 Oct 1991

Displacement, tons: 310 full load
Dimensions, feet (metres): 186 × 24.6 × 7.9 *(56.7 × 7.5 × 2.4)*
Main machinery: 2 Russki/Kolomna Type 40-DM diesels; 4,408 hp(m) *(3.24 MW)* sustained; 2 shafts; cp props
Speed, knots: 17. **Range, miles:** 2,000 at 15 kt
Complement: 31 (6 officers)
Guns: 1 Hispano-Suiza 30 mm/70
Mines: 2 rails.
Radars: Surface search: TSR 333 or Raytheon 1900; I-band.

Comment: Belonged to the former GDR Navy. Transferred without armament. Minesweeping gear retained including MSG-3 variable depth sweep device. A fourth of class sunk after a collision with a merchant ship on 5 August 2000.

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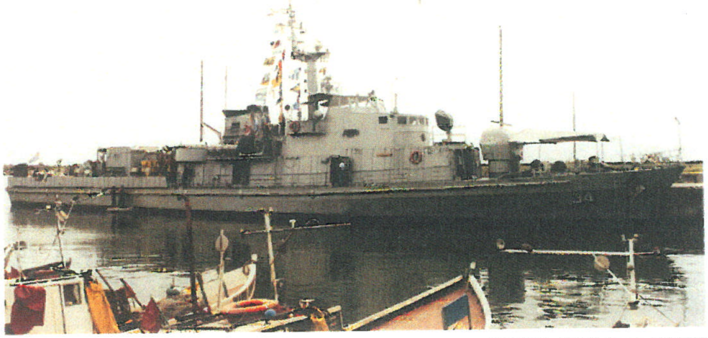
AUDAZ *2/2003*, A E Galarce* / 0569792

SURVEY AND RESEARCH SHIPS

1 HELGOLAND (TYPE 720B) CLASS (AGS)

Name	*No*	*Builders*	*Commissioned*
OYARVIDE (ex-*Helgoland*)	22 (ex-A 1457)	Unterweser, Bremerhaven	8 Mar 1966

Displacement, tons: 1,310 standard; 1,643 full load
Dimensions, feet (metres): 223.1 × 41.7 × 14.4 *(68 × 12.7 × 4.4)*
Main machinery: Diesel-electric; 4 MWM 12-cyl diesel generators; 2 motors; 3,300 hp(m) *(2.43 MW)*; 2 shafts
Speed, knots: 17. **Range, miles:** 6,400 at 16 kt
Complement: 34
Radars: Navigation: Raytheon; I-band.
Sonars: High definition, hull-mounted for wreck search.

Comment: Former German ocean-going tug launched on 25 November 1965. Paid off in 1997 and recommissioned on 21 September 1998 after being fitted out as a survey ship. Ice strengthened hull. Fitted for twin 40 mm guns. Sister ship *Fehmarn* may also be acquired from Germany.

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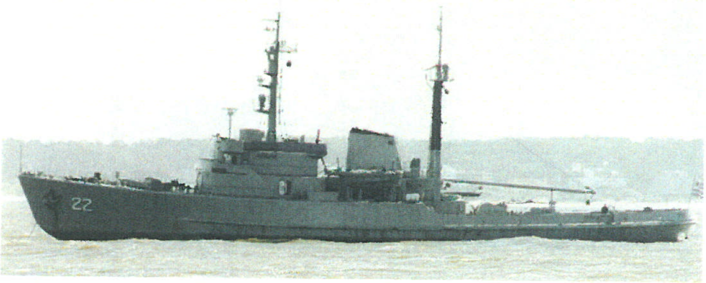

OYARVIDE *6/2002, A E Galarce* / 0529549

1 INSHORE SURVEY CRAFT (AGSC)

TRIESTE

Displacement, tons: 12 full load
Dimensions, feet (metres): 39.7 × 11.8 × 3.3 *(12.1 × 3.6 × 1)*
Main machinery: 2 Kamewa waterjets
Speed, knots: 16. **Range, miles:** 500 at 16 kt
Complement: 4
Sonars: Elac Compact Mk II; 180 kHz. Elac LAZ 4721; 200 kHz.

Comment: Formerly owned by the Academia Maritime Internacional de Trieste. Donated by Italian government in 2000.

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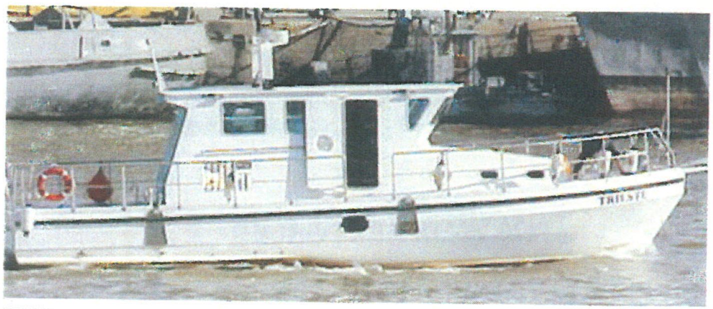

TRIESTE *2001, Uruguay Navy* / 0121418

TRAINING SHIPS

Notes: *Bonanza* is a 26 ton sail training vessel built in UK in 1984 and commissioned in July 1997.

1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Commissioned*
CAPITÁN MIRANDA	20 (ex-GS 10)	SECN Matagorda, Cádiz	1930

Displacement, tons: 839 full load
Dimensions, feet (metres): 209.9 × 26.3 × 12.4 *(64 × 8 × 3.8)*
Main machinery: 1 GM diesel; 750 hp *(552 kW)*; 1 shaft
Speed, knots: 10
Complement: 49
Radars: Navigation: Racal Decca TM 1226C; I-band.

Comment: Originally a diesel-driven survey ship with pronounced clipper bow. Converted for service as a three-masted schooner, commissioning as cadet training ship in 1978. Major refit by Bazán, Cadiz from June 1993 to March 1994, including a new diesel engine and a 5 m extension to the superstructure. Now has 853.4 m² of sail.

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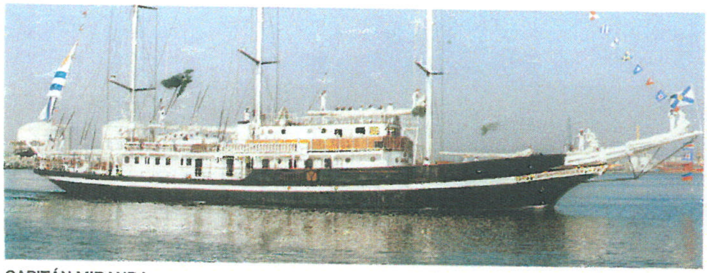

CAPITÁN MIRANDA *8/1999, A Campanera i Rovira* / 0084226

AUXILIARIES

Notes: ROU 73 *(Grito de Asencio)* is an 18 m harbour tug.

2 LCVPs

LD 45 **LD 46**

Displacement, tons: 15 full load
Dimensions, feet (metres): 46.5 × 11.6 × 2.7 *(14.1 × 3.5 × 0.8)*
Main machinery: 1 GM 4-71 diesel; 115 hp *(86 kW)* sustained; 1 shaft
Speed, knots: 9. **Range, miles:** 580 at 9 kt
Military lift: 10 tons

Comment: Built at Naval Shipyard, Montevideo and completed 1980.

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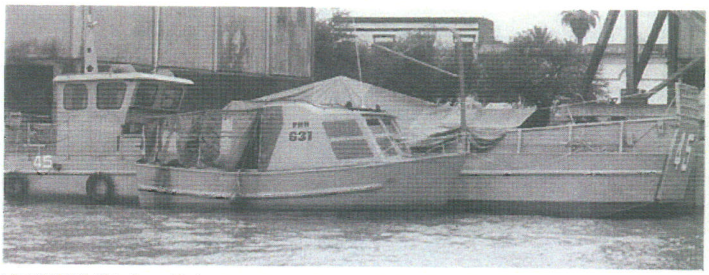

LD 45 (PNN 631 alongside) *12/1997, Hartmut Ehlers* / 0016610

1 PIAST CLASS (PROJECT 570) (SALVAGE SHIP) (ARS)

Name	*No*	*Builders*	*Commissioned*
VANGUARDIA (ex-*Otto Von Guericke*)	26 (ex-A 441)	Northern Shipyard, Gdansk	29 Dec 1976

Displacement, tons: 1,732 full load
Dimensions, feet (metres): 240 × 39.4 × 13.1 *(73.2 × 12 × 4)*
Main machinery: 2 Zgoda diesels; 3,800 hp(m) *(2.79 MW)*; 2 shafts; cp props
Speed, knots: 16. **Range, miles:** 3,000 at 12 kt
Complement: 61
Radars: Navigation: 2 TSR 333; I-band.

Comment: Acquired from Germany in October 1991 and sailed from Rostock in January 1992 after a refit at Neptun-Warnow Werft. Carries extensive towing and firefighting equipment plus a diving bell forward of the bridge. Armed with four 25 mm twin guns when in service with the former GDR Navy.

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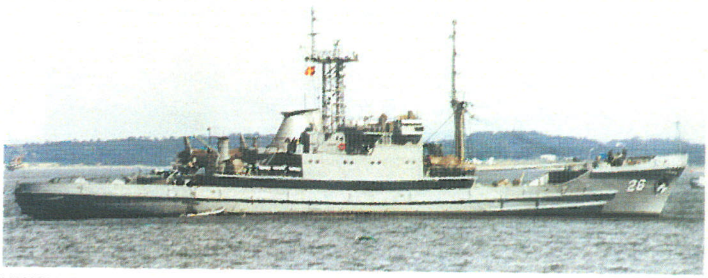

VANGUARDIA *11/2001, A E Galarce* / 0534056

1 BUOY TENDER (ABU)

SIRIUS 21

Displacement, tons: 290 full load
Dimensions, feet (metres): 115.1 × 32.8 × 5.9 *(35.1 × 10 × 1.8)*
Main machinery: 2 Detroit 12V-71TA diesels; 840 hp *(626 kW)* sustained; 2 shafts
Speed, knots: 11
Complement: 15

Comment: Buoy tender built at Montevideo Naval Yard and completed on 5 February 1988. Endurance, five days.

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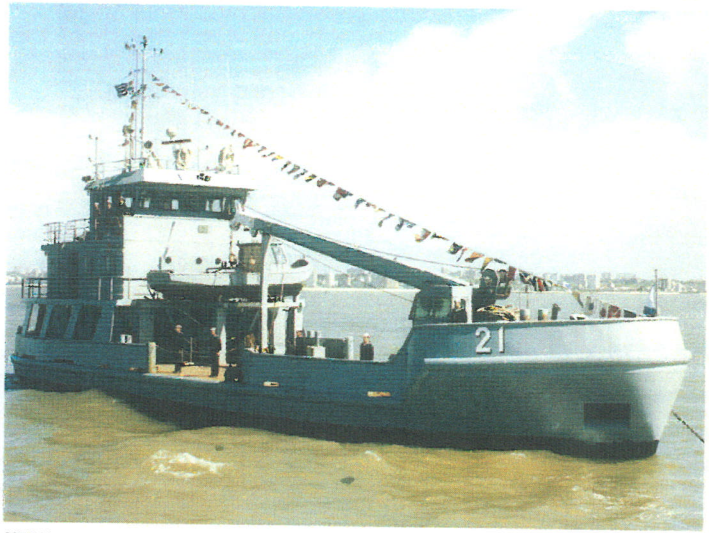

SIRIUS *6/1999, Uruguay Navy* / 0084228

2 LCM CLASS

LD 41 **LD 42**

Displacement, tons: 24 light; 57 full load
Dimensions, feet (metres): 56.1 × 14.1 × 3.9 *(17.1 × 4.3 × 1.2)*
Main machinery: 2 Gray Marine 64 HN9 diesels; 330 hp *(264 kW)*; 2 shafts
Speed, knots: 9. **Range, miles:** 130 at 9 kt
Complement: 5
Military lift: 30 tons

Comment: First one transferred on lease from USA October 1972. Lease extended in October 1986. Second built in Uruguay.

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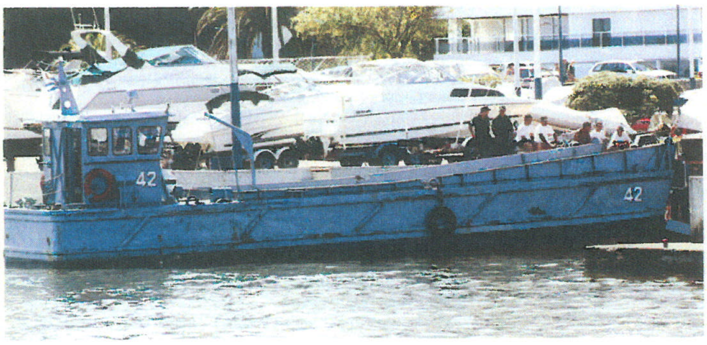

LD 42 *2/2003*, A E Galarce* / 0569791

TUGS

1 COASTAL TUG (YTB)

Name	*No*	*Builders*	*Commissioned*
BANCO ORTIZ (ex-*Zingst*, ex-*Elbe*)	27 (ex-7, ex-Y 1655)	Peenewerft, Wolgast	10 Sep 1959

Displacement, tons: 261 full load
Dimensions, feet (metres): 100 × 26.6 × 10.8 *(30.5 × 8.1 × 3.3)*
Main machinery: 1 R6 DV 148 diesel; 550 hp(m) *(404 kW)*; 1 shaft
Speed, knots: 10
Complement: 12
Guns: 1—12.7 mm MG

Comment: Ex-GDR Type 270 tug acquired in October 1991. 10 ton bollard pull.

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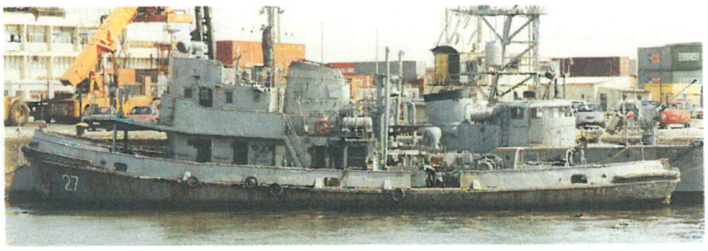

BANCO ORTIZ *10/2000, A E Galarce* / 0105807

Vanuatu

Country Overview

The Republic of Vanuatu, formerly the New Hebrides, was jointly administered by Britain and France until it gained independence in 1980. Situated in the southwestern Pacific Ocean, some 1,100 n miles southeast of Papua New Guinea, the country comprises a group of about 80 islands, of which 67 are inhabited, which run generally north-south. The four main islands are Espíritu Santo (the largest), Malekula, Efate and Tanna. Others include Epi, Pentecost, Aoba, Maewo, Erromanga and Ambrym. The capital, largest town and principal port is Port-Vila on Efate. An archipelagic state, territorial seas (12 n miles) are claimed. An Exclusive Economic Zone (EEZ) (200 n miles) is also claimed but limits have not been fully defined by boundary agreements. Disputed sovereignty of Matthew and Hunter Islands, both uninhabited, is one complication.

Headquarters Appointments

Commander, Maritime Wing:
Chief Inspector Tari Tamata

Bases

Port Vila, Efate Island

POLICE

1 PACIFIC CLASS (LARGE PATROL CRAFT) (PB)

Name	*No*	*Builders*	*Commissioned*
TUKORO	02	Australian Shipbuilding Industries	13 June 1987

Displacement, tons: 165 full load
Dimensions, feet (metres): 103.3 × 26.6 × 6.9 *(31.5 × 8.1 × 2.1)*
Main machinery: 2 Caterpillar 3516TA diesels; 4,400 hp *(3.28 MW)* sustained; 2 shafts
Speed, knots: 18. **Range, miles:** 2,500 at 12 kt
Complement: 18 (3 officers)
Guns: 1—12.7 mm MG. 1—7.62 mm MG.

Radars: Navigation: Furuno 1011; I-band.

Comment: Under the Defence Co-operation Programme Australia has provided one Patrol Craft to the Vanuatu government. Training and operational and technical assistance is also given by the Royal Australian Navy. Ordered 13 September 1985 and launched 20 May 1987. A half-life refit was carried out in 1995 and, now that the Australian government has extended the Pacific Patrol Boat programme, a life-extension refit will be required in 2004 in order to prolong the ship's life to 30 years. The ship is employed on Exclusive Economic Zone (EEZ) fishery patrol and surveillance, including customs duties.

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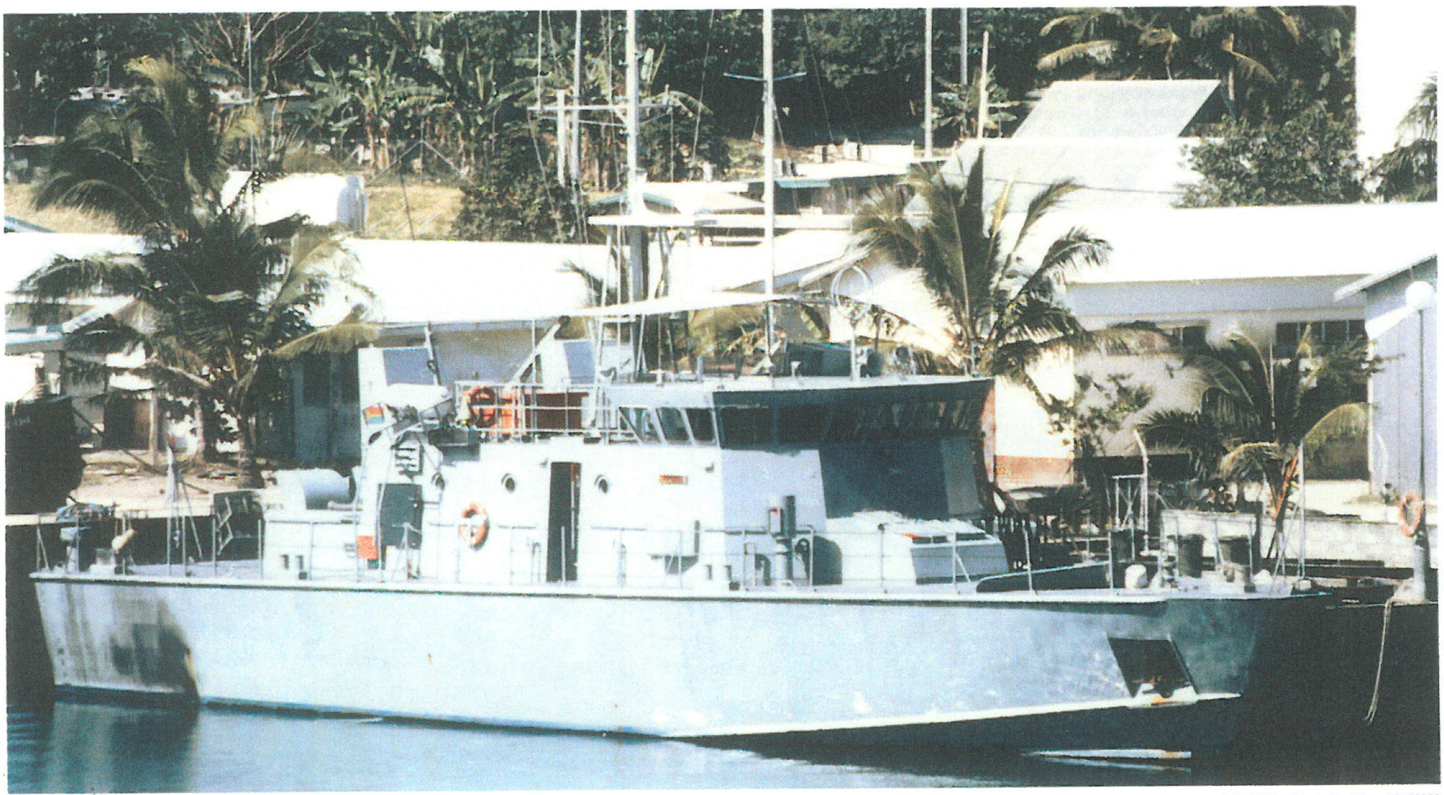

TUKORO *8/2003*, Chris Sattler* / 0568869

Venezuela
ARMADA DE VENEZUELA

Country Overview

The Republic of Venezuela is situated in northern South America. With an area of 352,144 square miles, it has borders to the east with Guyana, to the south with Brazil and to the west with Colombia. It has a 1,512 n mile coastline with the Caribbean Sea and Atlantic Ocean. Margarita is the principal offshore island, of which there are 70. The capital and largest city is Caracas which is served by the port of La Guaira. Other ports include Puerto Cabello, and Maracaibo. The chief port on the Orinoco River is Puerto Ordaz. Territorial Seas (12 n miles) are claimed. An EEZ (200 n miles) has also been claimed but the limits have not been fully defined by boundary agreements.

Headquarters Appointments

Commander General of the Navy (Chief of Naval Operations):
Vice Admiral Fernando Camejo Arena
Inspector General of the Navy:
Vice Admiral Fernando Maniglia Ferreira
Chief of Naval Staff:
Vice Admiral Armando Laguna Laguna
Commander of Naval Operations:
Vice Admiral Carlos Millan Millan
Commander of Naval Personnel:
Rear Admiral Luis Merida Galindo
Commander of Naval Logistics:
Rear Admiral Juan Eduardo Lares
Commander, Coast Guard:
Rear Admiral Evert Camacho Liendo

Diplomatic Representation

Naval Attaché in Washington:
Rear Admiral Pedro Negrin Ruiz
Defence Attaché in London:
Rear Admiral Daniel Luis Fontaine Jeanpierre
Naval Attaché in Rome:
Captain Humberto Lazo Cividane
Naval Attaché in Bogota:
Captain León González Maldonado

Personnel

(a) 2004: 15,800
(b) 2 years' national service

Fleet Organisation

The fleet is split into 'Type' squadrons — frigates (except GC 11 and 12), submarines, light and amphibious forces. Service Craft Squadron composed of RA 33, BO 11 and BE 11. The Fast Attack Squadron of the 'Constitución' class is subordinate to the Fleet Command.

Marines

Following restructuring, the Marines are formed into a division, *General Simón Bolívar*, which consists of two amphibious brigades. The 1st Amphibious Brigade comprises four infantry battalions: *Rafael Urdaneta* (Puerto Cabello), *Francisco de Miranda* (Punto Fijo), *Ezequiel Zamora* (Maracaibo) and *Manuel Ponce Lugo* (Puerto Cabello). The 2nd Amphibious Brigade comprises three battalions: *General Simón Bolívar* (Maiquetía), *Mariscal Antonio José de Sucre* (Cumaná) and *General José Francisco Bermúdez* (Carúpano). Additionally, there is an Engineer Brigade with three construction battalions; a Fluvial Brigade with the Fluvial Frontier Command at Puerto Ayacucho (Amazonas State) and several posts on border rivers.

Coast Guard

Formed in August 1982. It is part of the Navy. Its Headquarters are at La Guaira (Vargas State). Its primary task is the surveillance of the 200 mile Exclusive Economic Zone and other jurisdictional areas of Venezuelan waters. Coast Guard Squadron includes the frigates GC 11 and GC 12 and several patrol craft.

Naval Aviation

Headquarters are at Puerto Cabello (Carabobo State). Under the command of a Rear Admiral, there are four Squadrons: Training, ASW, Patrol and Transport.

Prefix to Ships' Names

ARV (Armada de la República de Venezuela)

Naval Bases

Caracas: Navy Headquarters and *La Carlota* Naval Aviation Facility.
Vargas State: Division de Infantería HQ and Naval Academy at Mamo; OCHINA (Hydrography) and OCAMAR (Marines Support) HQ and the Coast Guard Command HQ at La Guaira. *Simón Bolívár* International Airport Naval Aviation Facility and Naval Police Training Centre at Maiquetía.
Puerto Cabello (Carabobo State): Fleet Command HQ. Two battalions of 1st Amphibious Brigade at *Contralmirante Agustín Armario* Naval Base and Naval Aviation Command at *General Salom* Airport, Naval Schools and Dockyard.
Punto Fijo (Falcón State): Western Naval Zone HQ, Patrol Ships Squadron and Infantry Battalion 'Francisco de Miranda' at *Mariscal Juán Crisóstomo Falcón* Naval Base.
Carúpano (Sucre State): Eastern Naval Zone HQ. Two battalions of the 2nd Amphibious Brigade and Marines Training Centre.
Ciudad Bolívar (Bolívar): Fluvial Brigade HQ at *Capitán de Fragata Tomás Machado* Naval Base, with several Naval Posts along the Orinoco River.
Turiamo (Aragua State): *Generalísimo Francisco de Miranda* Marines Special Operation Command at the *Capitán de Fragata Tomás Vega* Naval Station.
Puerto Ayacucho (Amazonas State): Fluvial Frontier Command *General de Brigada Franz Rízquez Iribarren* with several Naval Posts along Orinoco, Atabapo, Negro and Meta rivers.
El Amparo (Apure State): Fluvial Frontier Command HQ *Teniente de Navío Jacinto Muñoz*, with several Naval Posts along Arauca and Barinas rivers.
Puerto de Nutrias (Barinas State): River Post.
San José de Macuro (Delta Amacuro State): Atlantic naval post.
La Orchila (Caribbean Sea): Minor Naval Base and Naval Aviation Station.
Puerto Hierro (Sucre State): Minor Naval Base.
Maracaibo (Zulia State), Güiria (Sucre State), Guanta (Anzoátegui State) and Margarita Island (Nueva Esparta State): Main Coast Guard Stations.
Los Monjes (Gulf of Venezuela), Los Testigos, Aves de Sotavento, La Tortuga and La Blanquilla Island (Caribbean Sea): Secondary Coast Guard Stations.

SUBMARINES

2 SÁBALO (209) CLASS (TYPE 1300) (SSK)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
SÁBALO	S 31 (ex-S 21)	Howaldtswerke, Kiel	2 May 1973	1 July 1975	6 Aug 1976
CARIBE	S 32 (ex-S 22)	Howaldtswerke, Kiel	1 Aug 1973	6 Nov 1975	11 Mar 1977

Displacement, tons: 1,285 surfaced; 1,600 dived
Dimensions, feet (metres): 200.1 × 20.3 × 18 *(61.2 × 6.2 × 5.5)*
Main machinery: Diesel-electric; 4 MTU 12V 493 AZ80 GA31L diesels; 2,400 hp(m) *(1.76 MW)* sustained; 4 alternators; 1.7 MW; 1 Siemens motor; 4,600 hp(m) *(3.38 MW)* sustained; 1 shaft
Speed, knots: 10 surfaced; 22 dived
Range, miles: 7,500 at 10 kt surfaced
Complement: 33 (5 officers)

Torpedoes: 8—21 in *(533 mm)* bow tubes. AEG SST 4; anti-surface; wire-guided; active/passive homing to 12 km *(6.6 n miles)* at 35 kt or 28 km *(15.3 n miles)* at 23 kt; warhead 260 kg. 14 torpedoes carried. Swim-out discharge.

Countermeasures: ESM: Thomson-CSF DR 2000; intercept.
Weapons control: Atlas Elektronik ISUS TFCS.
Radars: Navigation: Terma Scanter Mil; I-band.
Sonars: Atlas Elektronik CSU 3-32; hull-mounted; passive/active search and attack; medium frequency.
Thomson Sintra DUUX 2; passive ranging.

Programmes: Type 209, IK81 designed by Ingenieurkontor Lübeck for construction by Howaldtswerke, Kiel and sale by Ferrostaal, Essen, all acting as a consortium. Both refitted at Kiel in 1981 and 1984 respectively. There are plans for two more of the class.
Modernisation: Carried out by HDW at Kiel. *Sábalo* started in April 1990 and left in November 1992 without fully completing the refit. *Caribe* docked in Kiel throughout 1993 but was back in the water in mid-1994, and completed in 1995. The hull is slightly lengthened and new engines, fire control, sonar and attack periscopes fitted. Both are being refitted 2004-05. The upgrade is to include new batteries and weapon control systems.
Structure: A single-hull design with two main ballast tanks and forward and after trim tanks. The additional length is due to the new sonar dome similar to German Type 206 system. Fitted with snort and remote machinery control. Slow revving single screw. Very high-capacity batteries with GRP lead-acid cells and battery-cooling. Diving depth 250 m *(820 ft)*.
Operational: Endurance, 50 days patrol. Both are active.

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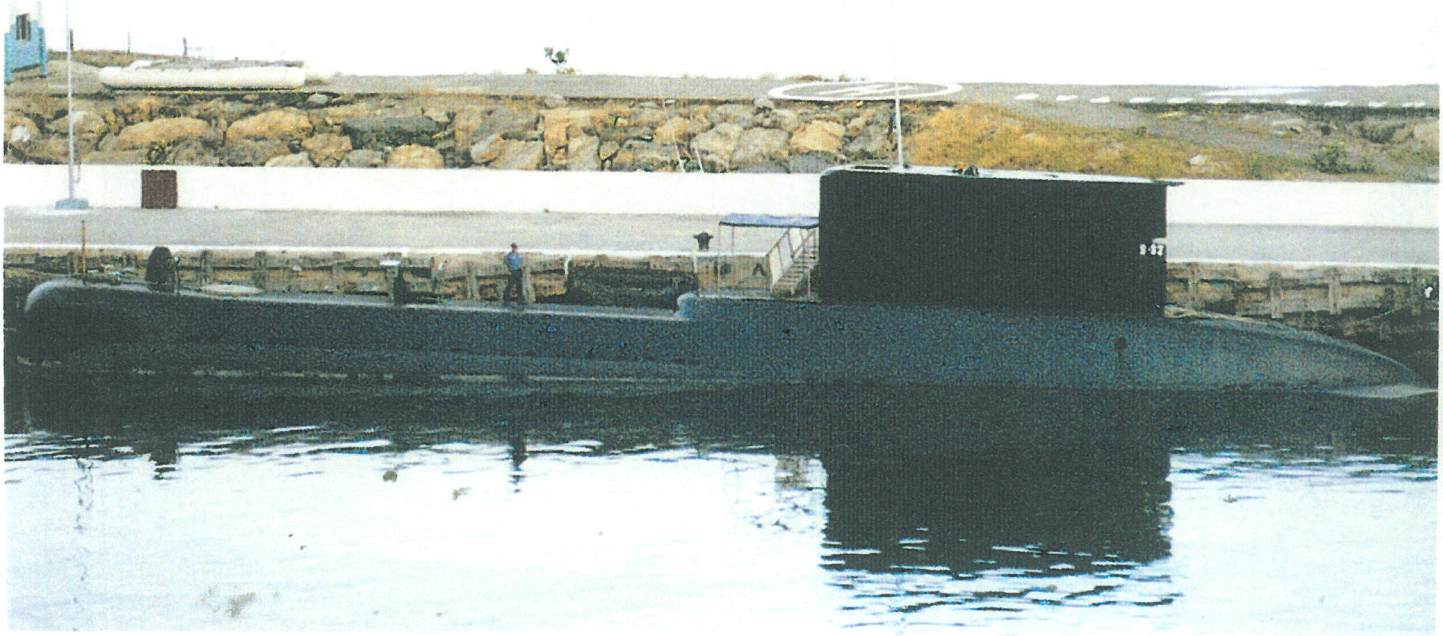

CARIBE

6/1999 / 0084231

FRIGATES

6 MODIFIED LUPO CLASS (FFGHM)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
MARISCAL SUCRE	F 21	Fincantieri, Riva Trigoso	19 Nov 1976	28 Sep 1978	10 May 1980
ALMIRANTE BRIÓN	F 22	Fincantieri, Riva Trigoso	June 1977	22 Feb 1979	7 Mar 1981
GENERAL URDANETA	F 23	Fincantieri, Riva Trigoso	23 Jan 1978	23 Mar 1979	8 Aug 1981
GENERAL SOUBLETTE	F 24	Fincantieri, Riva Trigoso	26 Aug 1978	4 Jan 1980	5 Dec 1981
GENERAL SALOM	F 25	Fincantieri, Riva Trigoso	7 Nov 1978	13 Jan 1980	3 Apr 1982
ALMIRANTE GARCIA (ex-*José Felix Ribas*)	F 26	Fincantieri, Riva Trigoso	21 Aug 1979	4 Oct 1980	30 July 1982

Displacement, tons: 2,208 standard; 2,520 full load
Dimensions, feet (metres): 371.3 × 37.1 × 12.1 *(113.2 × 11.3 × 3.7)*
Main machinery: CODOG; 2 Fiat/GE LM 2500 gas turbines; 50,000 hp *(37.3 MW)* sustained; 2 GMT A230.20M or 2 MTU 20V 1163 (F 21 and F 22) diesels; 8,000 hp(m) *(5.97 MW)* sustained; 2 shafts; LIPS cp props
Speed, knots: 35; 21 on diesels. **Range, miles:** 5,000 at 15 kt
Complement: 185

Missiles: SSM: 8 Otomat Teseo Mk 2 TG1 ❶; active radar homing to 80 km *(43.2 n miles)* at 0.9 Mach; warhead 210 kg; sea-skimmer for last 4 km *(2.2 n miles).*
SAM: Selenia Elsag Albatros octuple launcher ❷; 8 Aspide; semi-active radar homing to 13 km *(7 n miles)* at 2.5 Mach; height envelope 15-5,000 m *(49.2-16,405 ft)*; warhead 30 kg.
Guns: 1 OTO Melara 5 in *(127 mm)*/54 ❸; 45 rds/min to 16 km *(8.7 n miles)*; weight of shell 32 kg.
4 Otobreda 40 mm/70 (2 twin) ❹; 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
Torpedoes: 6—324 mm ILAS 3 (2 triple) tubes ❺. Whitehead A244S; anti-submarine; active/passive homing to 7 km *(3.8 n miles)* at 33 kt; warhead 34 kg (shaped charge).
Countermeasures: Decoys: 2 Breda 105 mm SCLAR 20-barrelled trainable ❻; chaff to 5 km *(2.7 n miles)*; illuminants to 12 km *(6.6 n miles)*. Can be used for HE bombardment.
ESM: Elisra NS 9003/9005; intercept.
Combat data systems: Selenia IPN 10. Elbit ENTCS 2000 (F 21 and F 22)
Weapons control: 2 Elsag NA 10 MFCS. 2 Dardo GFCS for 40 mm.
Radars: Air search: Selenia RAN 10S or Elta 2238 (F 21 and 22) ❼; E/F-band.
Air/surface search: Selenia RAN 11X; I-band.
Fire control: 2 Selenia Orion 10XP ❽; I/J-band.
2 Selenia RTN 20X ❾; I/J-band.
Navigation: SMA 3RM20; I-band.
Tacan: SRN 15A.
Sonars: EDO SQS-29 (Mod 610E) or Northrop Grumman 21 HS-7 (F 21 and F 22); hull-mounted; active search and attack; medium frequency.

Helicopters: 1 AB 212ASW ❿.

Programmes: All ordered on 24 October 1975. Similar to ships in the Italian and Peruvian navies.
Modernisation: F 21 and F 22 were scheduled to start a refit by Ingalls Shipyard in September 1992 but contractural problems delayed start until January 1998. Refits included upgrading the gas turbines, replacing the diesels, improving the combat data system, updating sonar and ESM, and overhauling all weapon systems. The ships were redelivered in mid-2002. F 23 and F 24 have been upgraded by Dianca, Puerto Caballo, and returned to service in December and October 2003 respectively. Work included modernisation of the main machinery, air-conditioning and weapon systems. F 25 and F 26 are to be similarly refitted.
Structure: Fixed hangar means no space for Aspide reloads. Fully stabilised.

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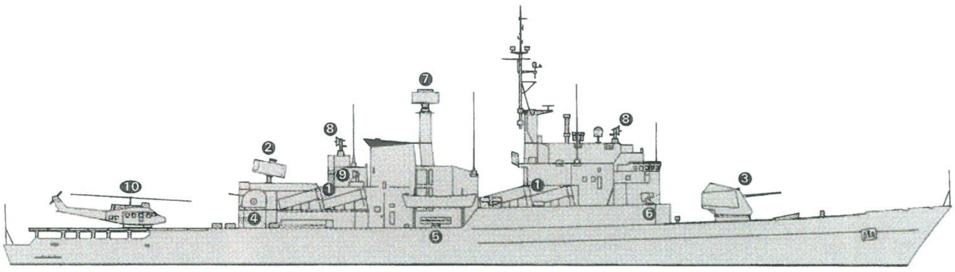
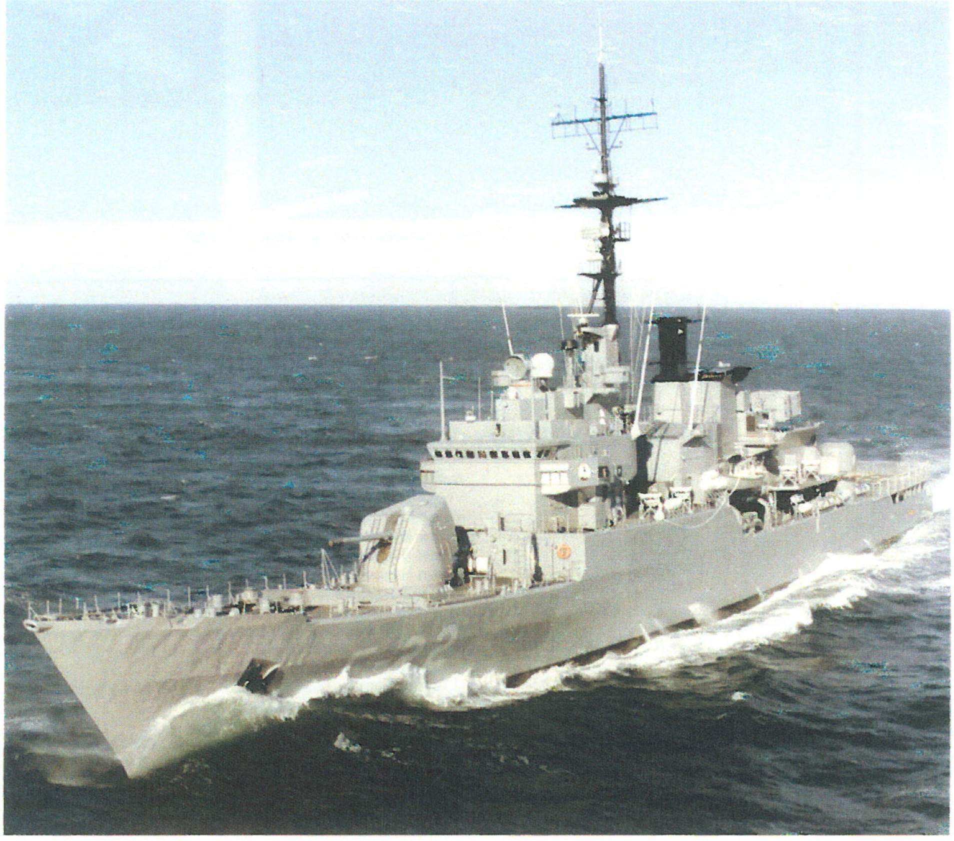
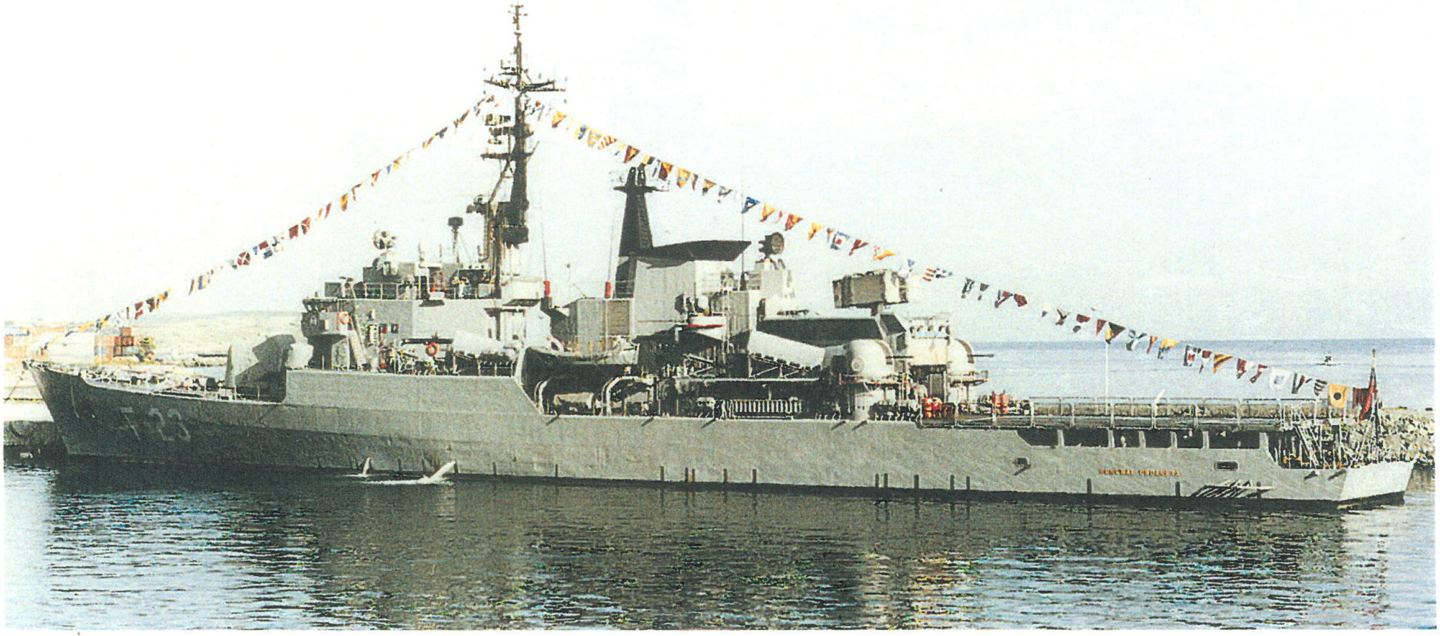


ALMIRANTE BRIÓN ***(Scale 1 : 900), Ian Sturton /*** 0529541



ALMIRANTE BRIÓN ***6/2001, Northrop Grumman Ingalls /*** 0096360



GENERAL URDANETA ***7/1996 /*** 0050730

SHIPBORNE AIRCRAFT

Notes: There are six Bell 412EP helicopters. Four acquired in 1999 and three more delivered in 2003 of which one has been lost. There are also three Bell 206B of which one is used for training.

Numbers/Type: 8 Agusta AB 212ASW
Operational speed: 106 kt *(196 km/h).*
Service ceiling: 14,200 ft *(4,330 m).*
Range: 230 n miles *(426 km).*
Role/Weapon systems: ASW helicopter with secondary ASV role. Sensors: APS-705 search radar, Bendix AQS-18A dipping sonar. Weapons: ASW; two Mk 46 or A244/S torpedoes or depth bombs. ASV; mid-course guidance to Teseo Mk 2 missiles.

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AB 212ASW *6/1999, Venezuelan Navy* / 0084233

LAND-BASED MARITIME AIRCRAFT (FRONT LINE)

Notes: There are also two Beech King Air and four Cessnas used for training and transport.

Numbers/Type: 3/2/3 CASA C-212 S 43/S 200/S 400 Aviocar.
Operational speed: 190 kt *(353 km/h).*
Service ceiling: 24,000 ft *(7,315 m).*
Range: 1,650 n miles *(3,055 km).*
Role/Weapon systems: Medium-range MR and coastal protection aircraft; limited armed action. Acquired in 1981-82 and 1985-86. Three modernised and augmented in 1998 by S 400 type. Previous numbers have reduced. Sensors: APS-128 radar. Weapons: ASW; depth bombs. ASV; gun and rocket pods.

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C-212 *6/2002, CASA/EADS* / 0529548

PATROL FORCES

Notes: Invitation to Tender issued in February 1999 for six 30 kt craft. First one ordered from Bazán in September 1999 but funding withdrawn at last moment. The craft may be re-ordered and built locally. The plan is for them to be fitted with Harpoon SSM and Otobreda 76 mm/62 guns. A 65 m hull of about 580 tons is envisaged. The future of this project remains uncertain.

6 CONSTITUCIÓN CLASS (FAST ATTACK CRAFT—MISSILE AND GUN) (PBG/PG)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
CONSTITUCIÓN	PC 11	Vosper Thornycroft	Jan 1973	1 June 1973	16 Aug 1974
FEDERACIÓN	PC 12	Vosper Thornycroft	Aug 1973	26 Feb 1974	25 Mar 1975
INDEPENDENCIA	PC 13	Vosper Thornycroft	Feb 1973	24 July 1973	20 Sep 1974
LIBERTAD	PC 14	Vosper Thornycroft	Sep 1973	5 Mar 1974	12 June 1975
PATRIA	PC 15	Vosper Thornycroft	Mar 1973	27 Sep 1973	9 Jan 1975
VICTORIA	PC 16	Vosper Thornycroft	Mar 1974	3 Sep 1974	22 Sep 1975

Displacement, tons: 170 full load
Dimensions, feet (metres): 121 × 23.3 × 6 *(36.9 × 7.1 × 1.8)*
Main machinery: 2 MTU MD 16V 538 TB90 diesels; 6,000 hp(m) *(4.4 MW)* sustained; 2 shafts
Speed, knots: 31. **Range, miles:** 1,350 at 16 kt
Complement: 20 (4 officers)

Missiles: SSM: 2 OTO Melara/Matra Teseo Mk 2 TG1 *(Federación, Libertad* and *Victoria)*; active radar homing to 80 km *(43.2 n miles)* at 0.9 Mach; sea-skimmer for last 4 km *(2.2 n miles)*; warhead 210 kg.

Guns: 1 OTO Melara 3 in *(76 mm)*/62 compact *(Constitución, Independencia* and *Patria)*; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
1 Breda 30 mm/70 *(Federación, Libertad* and *Victoria)*; 800 rds/min; weight of shell 0.37 kg.
2—12.7 mm MGs.
Weapons control: Elsag NA 10 Mod 1 GFCS *(Constitución, Independencia* and *Patria)*. Alenia Elsag Medusa optronic director *(Federación, Libertad* and *Victoria)*.
Radars: Surface search: SMA SPQ-2D; I-band.
Fire control: Selenia RTN 10X (in 76 mm ships); I/J-band.
Navigation: Racal; I-band.

Programmes: Transferred from the Navy in 1983 to the Coast Guard but now back again with Fleet Command.
Modernisation: Single Breda 30 mm guns replaced the 40 mm guns in the missile craft in 1989. All were refitted at Puerto Cabello 1992-1995.
Operational: Plans to replace these ships are uncertain. Meanwhile it is reported that their propulsion systems have been refitted.

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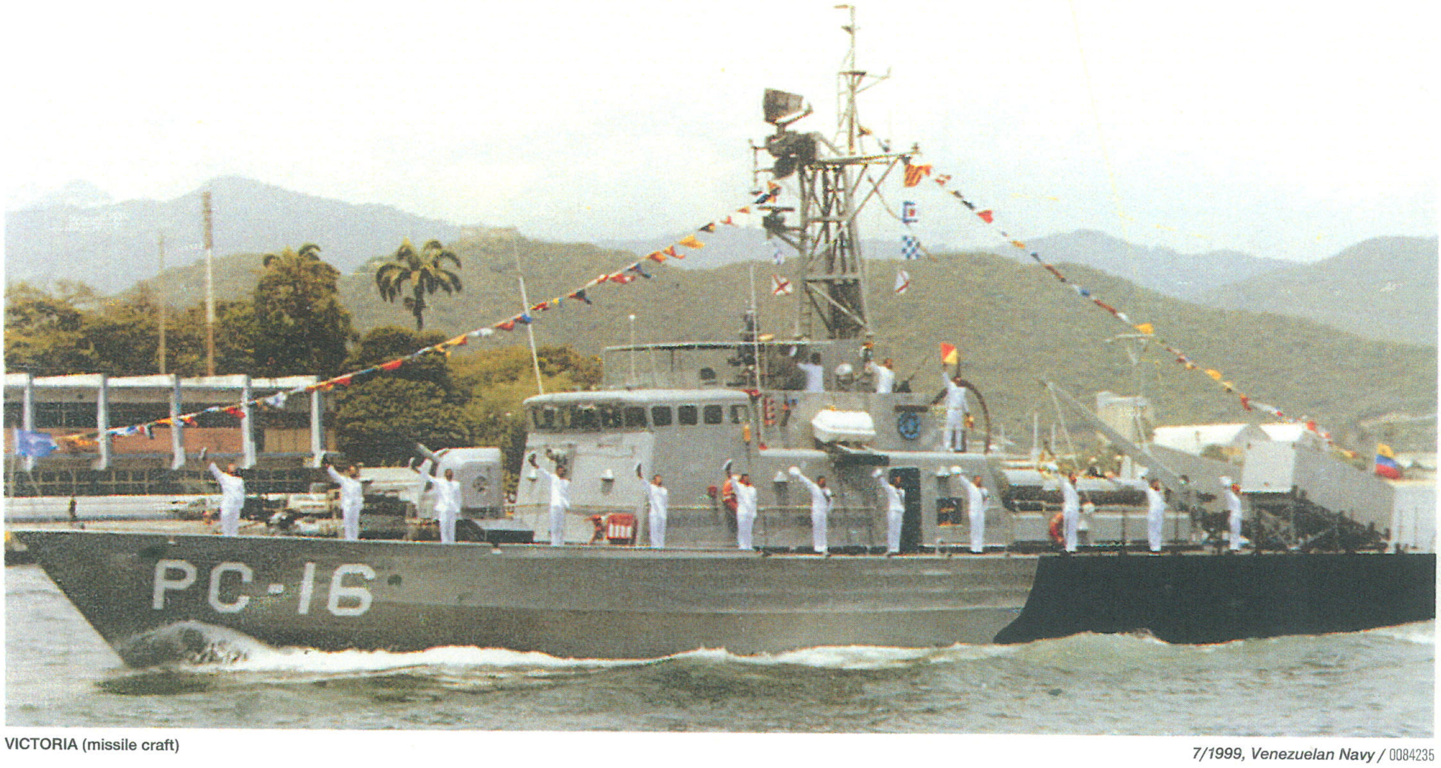

VICTORIA (missile craft) *7/1999, Venezuelan Navy* / 0084235

AMPHIBIOUS FORCES

4 CAPANA (ALLIGATOR) CLASS (LSTH)

Name	*No*	*Builders*	*Commissioned*
CAPANA	T 61	Korea Tacoma Marine	24 July 1984
ESEQUIBO	T 62	Korea Tacoma Marine	24 July 1984
GOAJIRA	T 63	Korea Tacoma Marine	20 Nov 1984
LOS LLANOS	T 64	Korea Tacoma Marine	20 Nov 1984

Displacement, tons: 4,070 full load
Dimensions, feet (metres): 343.8 × 50.5 × 9.8 *(104.8 × 15.4 × 3)*
Main machinery: 2 SEMT-Pielstick 16 PA6 V 280 diesels; 12,800 hp(m) *(9.41 MW)*; 2 shafts
Speed, knots: 14. **Range, miles:** 5,600 at 11 kt
Complement: 117 (13 officers)
Military lift: 202 troops; 1,600 tons cargo; 4 LCVPs
Guns: 2 Breda 40 mm/70 (twin). 2 Oerlikon 20 mm GAM-BO1.
Weapons control: Selenia NA 18/V; optronic director.
Helicopters: Platform only.

Comment: Ordered in August 1982. Version III of Korea Tacoma Alligator type. Each has a 50 ton tank turntable and a lift between decks. Similar to Indonesian and South Korean LSTs. *Goajira* was out of service from June 1987 to May 1993 after a serious fire. T 62 and T 63 reported to have been refitted in 2003.

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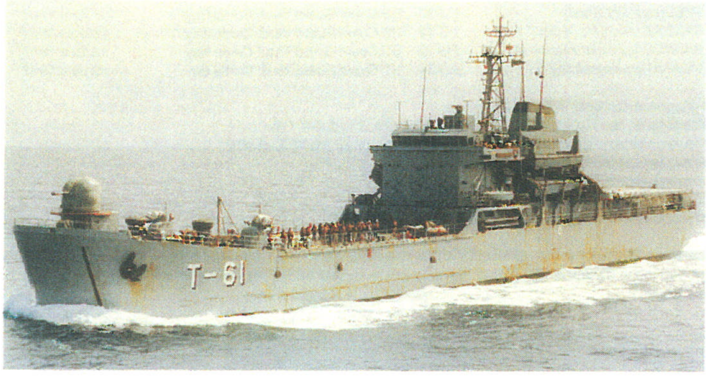

CAPANA *6/1998, Venezuelan Navy* / 0084236

ESEQUIBO *3/1999* / 0084237

2 AJEERA CLASS (LCU)

Name	*No*	*Builders*	*Commissioned*
MARGARITA	T 71	Swiftships Inc, Morgan City	20 Jan 1984
LA ORCHILA	T 72	Swiftships Inc, Morgan City	11 May 1984

Displacement, tons: 428 full load
Dimensions, feet (metres): 129.9 × 36.1 × 5.9 *(39.6 × 11 × 1.8)*
Main machinery: 2 Detroit 16V-149 diesels; 1,800 hp *(1.34 MW)* sustained; 2 shafts
Speed, knots: 13. **Range, miles:** 1,500 at 10 kt
Complement: 26 (4 officers)
Military lift: 150 tons cargo; 100 tons fuel
Guns: 3—12.7 mm MGs.
Radars: Navigation: Raytheon 6410; I-band.

Comment: Both serve in Fluvial Command. Have a 15 ton crane.

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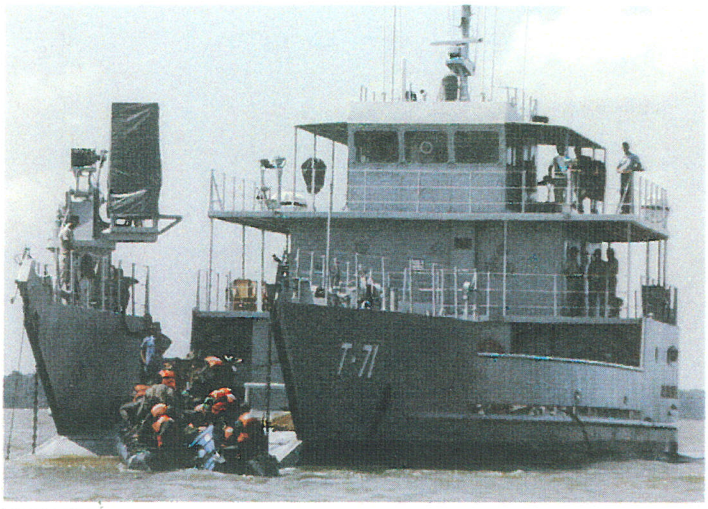

MARGARITA *6/1999, Venezuelan Navy* / 0084238

AUXILIARIES

Notes: There is one navigational aids tender *Macuro* BB-11.

1 LOGISTIC SUPPORT SHIP (AORH)

Name	*No*	*Builders*	*Commissioned*
CIUDAD BOLÍVAR	T 81	Hyundai, Ulsan	2001

Displacement, tons: 9,750 full load
Dimensions, feet (metres): 451.8 × 59 × 21.7 *(137.7 × 18 × 6.6)*
Main machinery: 2 Caterpillar 3616 diesels; 2 shafts; LIPS cp props
Speed, knots: 18. **Range, miles:** 4,500 at 15 kt
Complement: 104
Guns: 2 Bofors 40 mm/70. 2—12.7 mm MGs.

Comment: Ordered from Hyundai, South Korea, in February 1999. Delivered in October 2001. Capable of carrying 4,400 tons of fuel and 900 tons of cargo. Two replenishment stations on each beam. Hangar and deck for medium size helicopter. Similar ships in service with New Zealand and Republic of Korea navies.

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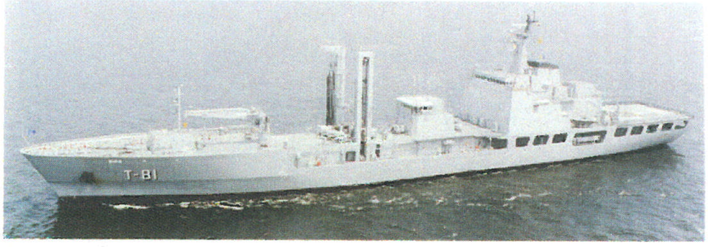

CIUDAD BOLÍVAR *10/2002, Mario R V Carveiro* / 0534069

SURVEY SHIPS

Notes: Construction of a new survey ship started in August 2003. To be called *Almirante Manuel Ezequiel Bruzual* (RA 11), it is expected to replace RA 33 in 2005.

1 CHEROKEE CLASS (AGS)

Name	*No*	*Builders*	*Commissioned*
MIGUEL RODRIGUEZ (ex-*Salinan* ATF 161)	RA 33 (ex-R 23)	Charleston SB and DD Co	9 Nov 1945

Displacement, tons: 1,235 standard; 1,675 full load
Dimensions, feet (metres): 205 × 38.5 × 17 *(62.5 × 11.7 × 5.2)*
Main machinery: Diesel-electric; 4 GM 16-278A diesels; 4,400 hp *(3.28 MW)*; 4 generators; 1 motor; 3,000 hp *(2.24 MW)*; 1 shaft
Speed, knots: 15. **Range, miles:** 7,000 at 15 kt.
Complement: 85
Guns: 2—12.7 mm MGs.
Radars: Navigation: Sperry SPS-53; I/J-band.

Comment: Acquired from US on 1 September 1978. Last of a class of three. Assigned to OCHINA (Hydrographic department). Likely to be replaced in 2005 by new vessel.

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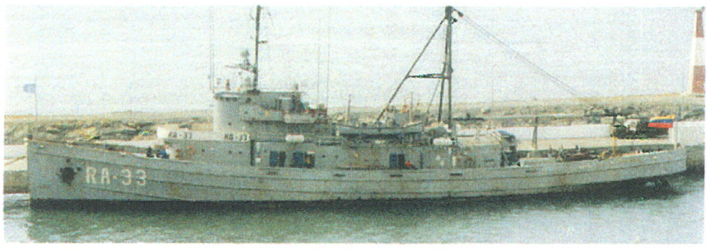

MIGUEL RODRIGUEZ *4/2001* / 0114819

1 SURVEY AND RESEARCH SHIP (AGOR)

Name	*No*	*Builders*	*Launched*	*Commissioned*
PUNTA BRAVA	BO 11	Bazán, La Carraca	9 Mar 1990	14 Mar 1991

Displacement, tons: 1,170 full load
Dimensions, feet (metres): 202.4 × 39 × 12.1 *(61.7 × 11.9 × 3.7)*
Main machinery: 2 Bazán-MAN 7L20/27 diesels; 2,500 hp(m) *(1.84 MW)*; 2 shafts; bow thruster
Speed, knots: 13. **Range, miles:** 8,000 at 13 kt
Complement: 49 (6 officers) plus 6 scientists
Radars: Navigation: ARPA; I-band.

Comment: Ordered in September 1988. Developed from the Spanish 'Malaspina' class. A multipurpose ship for oceanography, marine resource evaluation, geophysical and biological research. Equipped with Qubit hydrographic system. Carries two survey launches. EW equipment is fitted. Assigned to the OCHINA (Hydrographic department).

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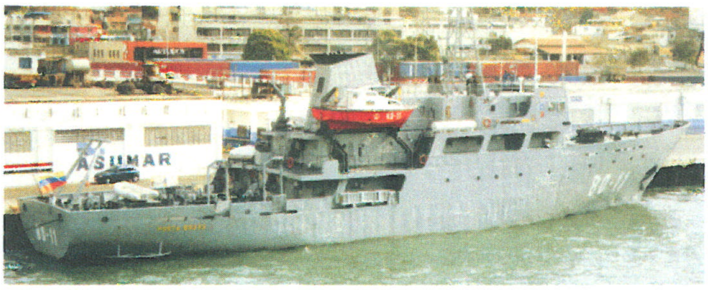

PUNTA BRAVA *4/2001* / 0114821

2 SURVEY CRAFT (AGSC)

Name	*No*	*Builders*	*Commissioned*
GABRIELA (*ex-Peninsula de Araya*)	LH 11	Abeking & Rasmussen	5 Feb 1974
LELY (*ex-Peninsula de Paraguana*)	LH 12	Abeking & Rasmussen	7 Feb 1974

Displacement, tons: 90 full load
Dimensions, feet (metres): 88.6 × 18.4 × 4.9 *(27 × 5.6 × 1.5)*
Main machinery: 2 MTU diesels; 2,300 hp(m) *(1.69 MW)*; 2 shafts
Speed, knots: 20
Complement: 9 (1 officer)

Comment: LH 12 laid down 28 May 1973, launched 12 December 1973 and LH 11 laid down 10 March 1973, launched 29 November 1973. Acquired in September 1986 from the Instituto de Canalizaciones. LH 11 is assigned to the Fluvial Command, LH 12 to the Coast Guard.

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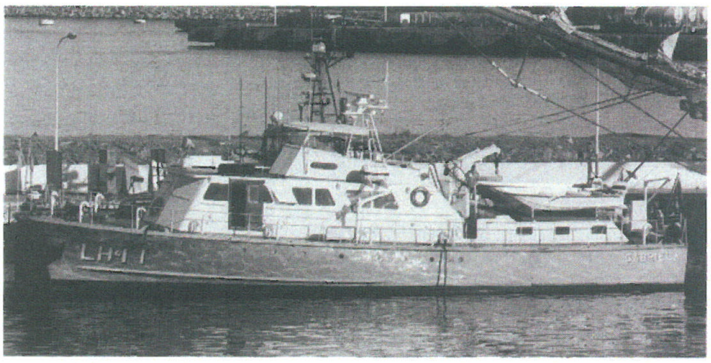

GABRIELA (alongside *Alcatraz* PG 32) *1/1994, Maritime Photographic*

TRAINING SHIPS

1 SAIL TRAINING SHIP (AXS)

Name	*No*	*Builders*	*Launched*	*Commissioned*
SIMÓN BOLÍVAR	BE 11	AT Celaya, Bilbao	21 Nov 1979	6 Aug 1980

Displacement, tons: 1,260 full load
Measurement, tons: 934 gross
Dimensions, feet (metres): 270.6 × 34.8 × 14.4 *(82.5 × 10.6 × 4.4)*
Main machinery: 1 Detroit 12V-149T diesel; 875 hp *(652 kW)* sustained; 1 shaft
Speed, knots: 10
Complement: 93 (17 officers) plus 102 trainees

Comment: Ordered in 1978. Three-masted barque; similar to *Guayas* (Ecuador), *Cuauhtemoc* (Mexico) and *Gloria* (Colombia). Sail area (23 sails), 1,650 m². Highest mast, 131.2 ft *(40 m)*. Has won several international sail competitions including Cutty Sark '96.

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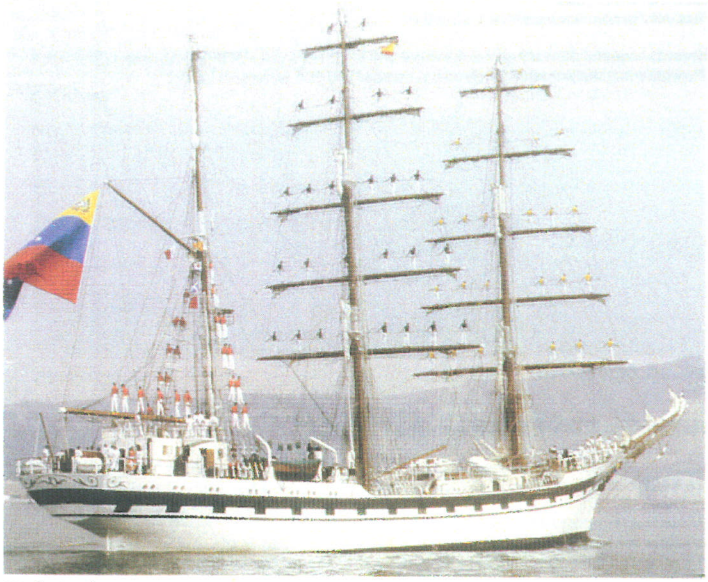

SIMÓN BOLÍVAR *6/2001, A Campanera i Rovira* / 0534070

COAST GUARD

7 RIVER PATROL CRAFT (PBR)

MANAURE PF 21	**TAMANACO** PF 24	**SOROCAIMA** PF 34
MARA PF 22	**TEREPAIMA** PF 31	
GUAICAIPURO PF 23	**YARACUY** PF 33	

Displacement, tons: 15 full load
Dimensions, feet (metres): 54.1 × 14.1 × 4.3 *(16.5 × 4.3 × 1.3)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 10
Complement: 8
Guns: 1—12.7 mm MG.
Radars: Surface search: Raytheon 6410; I-band.

Comment: River craft used by the Marines. Details given are for four 'Manaure' class. There are also three 'Terepaima' class which are 10 m long and capable of 45 kt.

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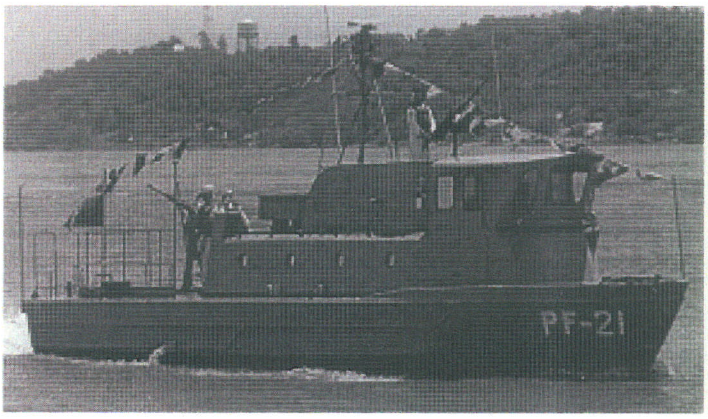

MANAURE *6/1998, Venezuelan Navy* / 0050737

4 PETREL (POINT) CLASS (WPB)

Name	*No*	*Builders*	*Commissioned*
PETREL (ex-*Point Knoll*)	PG 31	US Coast Guard Yard, Curtis Bay	26 June 1967
ALCATRAZ (ex-*Point Judith*)	PG 32	US Coast Guard Yard, Curtis Bay	26 July 1966
ALBATROS (ex-*Point Franklin*)	PG 33	US Coast Guard Yard, Curtis Bay	14 Nov 1966
PELÍCANO (ex-*Point Ledge*)	PG 34	US Coast Guard Yard, Curtis Bay	18 July 1962

Displacement, tons: 68 full load
Dimensions, feet (metres): 83 × 17.2 × 5.8 *(25.3 × 5.2 × 1.8)*
Main machinery: 2 Caterpillar diesels; 1,600 hp *(1.19 MW)*; 2 shafts
Speed, knots: 23.5. **Range, miles:** 1,500 at 8 kt
Complement: 10 (1 officer)
Guns: 2—12.7 mm MGs.
Radars: Surface search: Raytheon SPS-64; I-band.

Comment: *Petrel* transferred from USCG on 18 November 1991 and *Alcatraz* on 15 January 1992, *Albatros* on 23 June 1998 and *Pelícano* on 3 August 1998. The transfer of four further craft is unlikely.

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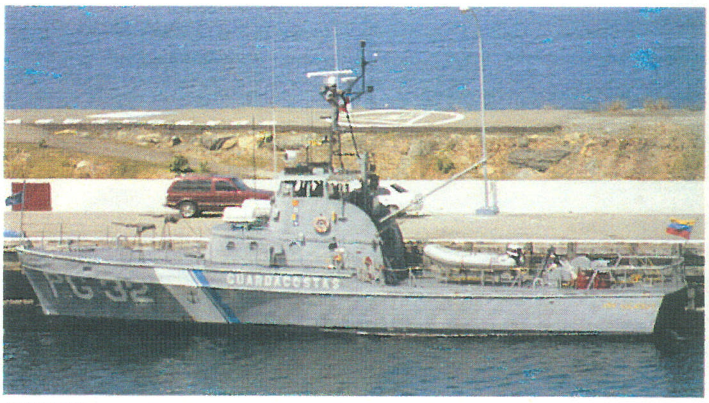

ALCATRAZ *4/1999* / 0084242

12 GAVION CLASS (WPB)

GAVION	PG 401	**CORMORAN**	PG 405	**NEGRON**	PG 409
ALCA	PG 402	**COLIMBO**	PG 406	**PIGARGO**	PG 410
BERNACLA	PG 403	**FARDELA**	PG 407	**PAGAZA**	PG 411
CHAMAN	PG 404	**FUMAREL**	PG 408	**SERRETA**	PG 412

Displacement, tons: 45 full load
Dimensions, feet (metres): 80 × 17 × 4.8 *(24.4 × 5.2 × 1.5)*
Main machinery: 2 Detroit 12V-92TA diesels; 2,160 hp *(1.61 MW)* sustained; 2 shafts
Speed, knots: 25. **Range, miles:** 1,000 at 12 kt
Complement: 10
Guns: 2—12.7 mm MGs. 2—7.62 mm MGs. 1—40 mm Mk 19 grenade launcher.
Radars: Surface search: Raytheon R1210; I-band.

Comment: Ordered from Halter Marine 24 April 1998 and delivered from late 1999 to early 2000. Aluminium construction. Four craft refitted in 2003.

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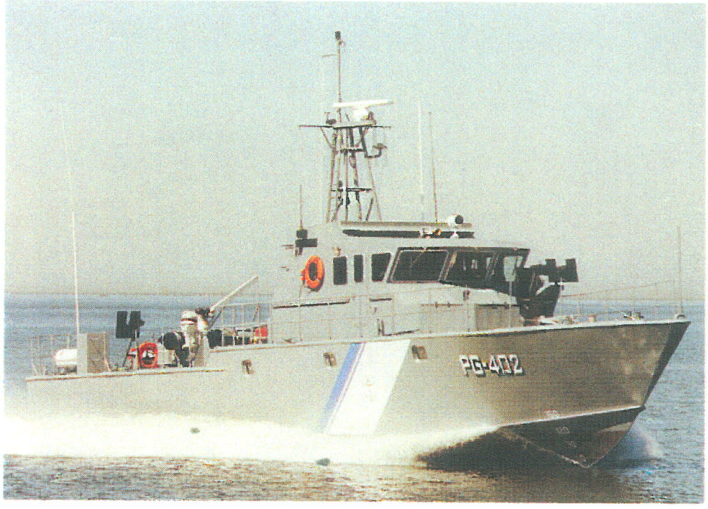

ALCA *10/1999, Halter Marine* / 0084243

2 ALMIRANTE CLEMENTE CLASS (WFS)

Name	*No*	*Builders*	*Laid down*	*Launched*	*Commissioned*
ALMIRANTE CLEMENTE	GC 11	Ansaldo, Livorno	5 May 1954	12 Dec 1954	1956
GENERAL JOSÉ TRINIDAD MORAN	GC 12	Ansaldo, Livorno	5 May 1954	12 Dec 1954	1956

Displacement, tons: 1,300 standard; 1,500 full load
Dimensions, feet (metres): 325.1 × 35.5 × 12.2 *(99.1 × 10.8 × 3.7)*
Main machinery: 2 GMT 16-645E7C diesels; 6,080 hp(m) *(4.47 MW)* sustained; 2 shafts
Speed, knots: 22. **Range, miles:** 3,500 at 15 kt
Complement: 142 (12 officers)

Guns: 2 Otobreda 3 in *(76 mm)*/62 compact ❶; 85 rds/min to 16 km *(8.7 n miles)*; weight of shell 6 kg.
2 Breda 40 mm/70 (twin) ❷; 300 rds/min to 12.5 km *(6.8 n miles)*; weight of shell 0.96 kg.
Torpedoes: 6—324 mm ILAS 3 (2 triple) tubes ❸. Whitehead A 244S; anti-submarine; active/passive homing to 7 km *(3.8 n miles)* at 33 kt; warhead 34 kg (shaped charge).
Depth charges: 2 throwers.
Weapons control: Elsag NA 10 Mod 1 GFCS.
Radars: Air search: Plessey AWS 4 ❹; E/F-band.
Surface search: Racal Decca 1226 ❺; I-band.
Fire control: Selenia RTN 10X ❻; I/J-band.
Sonars: Plessey PMS 26; hull-mounted; active search and attack; 10 kHz.

Programmes: Survivors of a class of six ordered in 1953.
Modernisation: Both ships were refitted by Cammell Laird/ Plessey group in April 1968. 4 in guns replaced by 76 mm. Both refitted again in Italy in 1984-85, prior to transfer to Coast Guard duties in 1986.
Structure: Fitted with Denny-Brown fin stabilisers and air conditioned throughout the living and command spaces.

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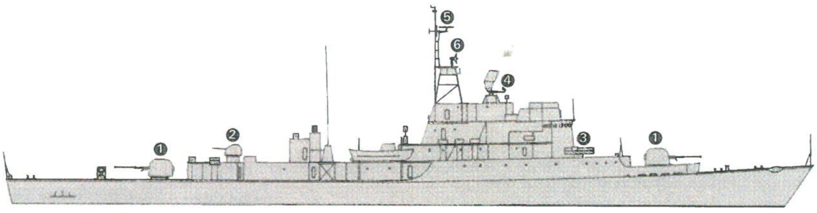
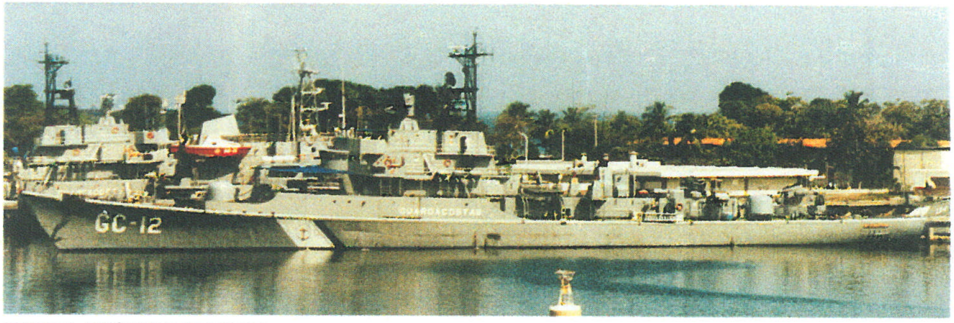
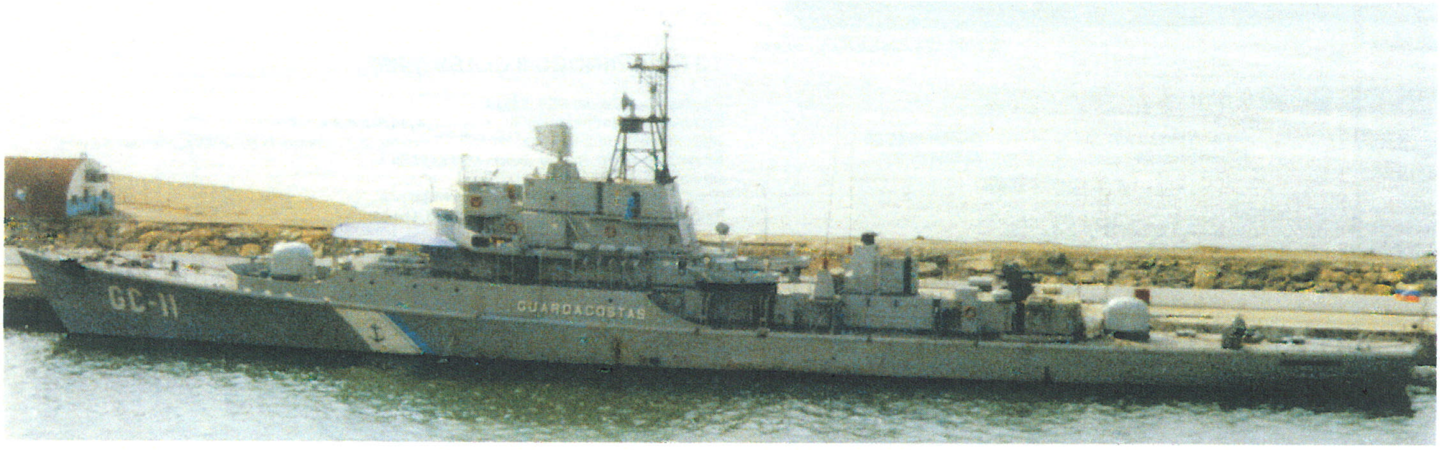


ALMIRANTE CLEMENTE *(Scale 1 : 900), Ian Sturton*



GENERAL JOSÉ TRINIDAD MORAN *10/1998, E & M Laursen* / 0050734



ALMIRANTE CLEMENTE *4/2001* / 0114820

2 UTILITY CRAFT (YAG)

LOS TAQUES LG 11 **LOS CAYOS** LG 12

Displacement, tons: 350 full load
Dimensions, feet (metres): 87.3 × 23.3 × 4.9 *(26.6 × 7.1 × 1.5)*
Main machinery: 1 diesel; 850 hp(m) *(625 kW)*; 1 shaft
Speed, knots: 8
Complement: 10
Guns: 1—12.7 mm MG.

Comment: Former trawlers. Commissioned 15 May 1981 and 17 July 1984 respectively. Used for salvage and SAR tasks.

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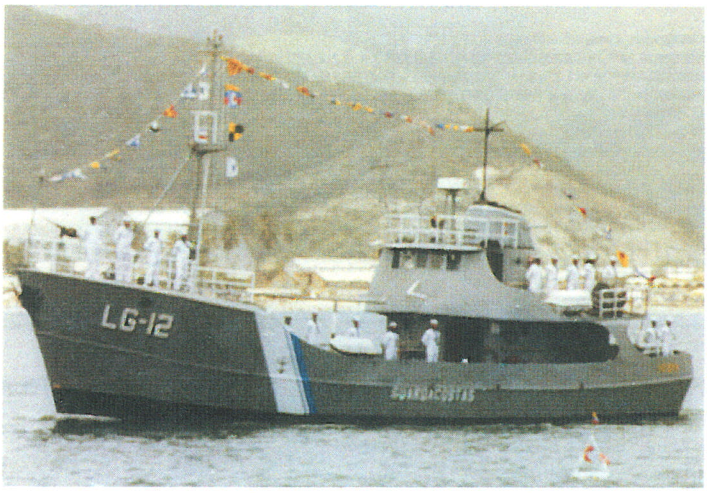

LOS CAYOS *3/1999, Venezuelan Navy* / 0084244

18 INSHORE PATROL BOATS (PBR)

CONSTANCIA LRG 001 **HONESTIDAD** LRG 003 **INTEGRIDAD** LRG 005 **+12**
PERSEVERANCIA LRG 002 **TENACIDAD** LRG 004 **LEALTAD** LRG 006

Displacement, tons: 11 full load
Dimensions, feet (metres): 39.4 × 9.2 × 5.6 *(12 × 2.8 × 1.7)*
Main machinery: 2 diesels; 640 hp(m) *(470 kW)*; 2 shafts
Speed, knots: 38
Complement: 4
Guns: 2—7.62 mm MGs.
Radars: Surface search: I-band.

Comment: First three speed boat type with GRP hulls delivered from a local shipyard in December 1991. Fourth completed in August 1993. Details given are for *Integridad* which is the first of two built at Guatire, and delivered in 1997/98. GRP construction. The twelve un-named craft are Boston Whaler 'Guardian' class capable of 25 kt, mounting 2—12.7 mm and 2—6.72 mm MGs, and with Raytheon radars. These were donated by the US. All of these craft are used by Marines.

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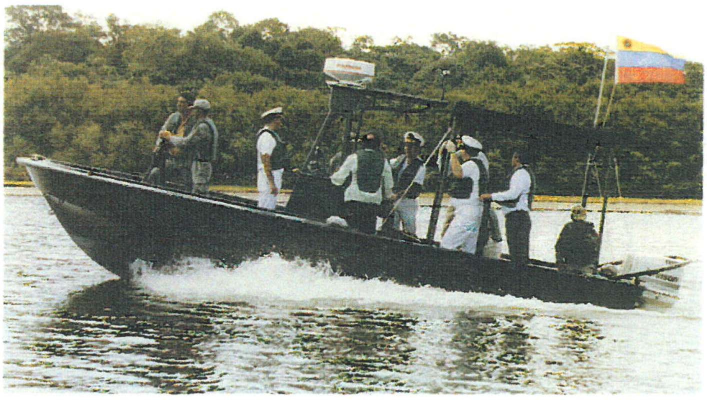

GUARDIAN *4/1999, Venezuelan Navy* / 0084245

For details of the latest updates to *Jane's Fighting Ships* online and to discover the additional information available exclusively to online subscribers please visit

8 PUNTA MACOLLA CLASS (PB)

PUNTA MACOLLA LSM 001
FARALLÓN CENTINELA LSM 002
CHARAGATO LSM 003
BAJO BRITO LSM 004
BAJO ARAYA LSM 005
CARECARE LSM 006
VELA DE COBO LSM 007
CAYO MACEREO LSM 008

Displacement, tons: 5 full load
Dimensions, feet (metres): 41.7 × 9.2 × 6.6 *(12.7 × 2.8 × 2)*
Main machinery: 2 diesels; 2 shafts
Speed, knots: 30
Complement: 4
Guns: 1—12.7 mm MG.
Radars: Surface search: Raytheon; I-band.

Comment: Built in Venezuela by Intermarine. Used by OCHINA (Hydrographic department) and for SAR. First six delivered by 1997 and last two in 2000.

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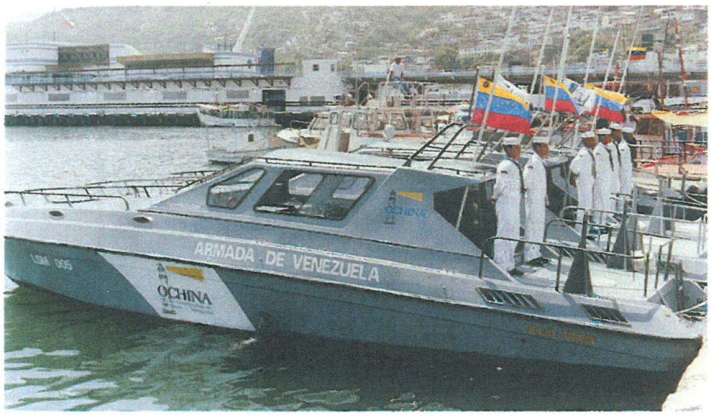

BAJO ARAYA *3/1999, Venezuelan Navy* / 0084246

7 POLARIS CLASS (PBF)

POLARIS LG 21
SIRIUS LG 22
RIGEL LG 23
ALDEBARAN LG 24
ANTARES LG 25
CANOPUS LG 26
ALTAIR LG 27

Displacement, tons: 5 full load
Dimensions, feet (metres): 26 wl × 8.5 × 2.6 *(7.9 × 2.6 × 0.8)*
Main machinery: 1 diesel outdrive; 400 hp(m) *(294 kW)*
Speed, knots: 50
Complement: 4
Guns: 1—12.7 mm MG.
Radars: Surface search: Raytheon; I-band.

Comment: Used by the Coast Guard for drug interdiction.

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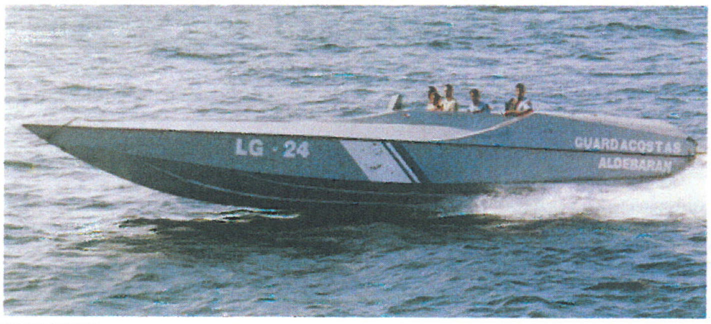

ALDEBARAN *4/1999, Venezuelan Navy* / 0084247

1 SUPPORT SHIP (AKSL)

Name	*No*	*Builders*	*Commissioned*
FERNANDO GOMEZ (ex-*José Felix Ribas*, ex-*Oswegatchie*)	RP 21 (ex-R 13)	Commercial Iron Works, Portland	14 Dec 1945

Displacement, tons: 245 full load
Dimensions, feet (metres): 100.1 × 25.9 × 9.5 *(30.5 × 7.9 × 2.9)*
Main machinery: 2 diesels; 1,270 hp *(947 kW)*; 1 shaft
Speed, knots: 10
Complement: 12
Guns: 2—12.7 mm MGs.
Radars: Navigation: Raytheon; I-band.

Comment: Former tug, originally acquired from the US in 1965. Out of service for some years but now employed as a logistic support ship and for occasional patrol and SAR.

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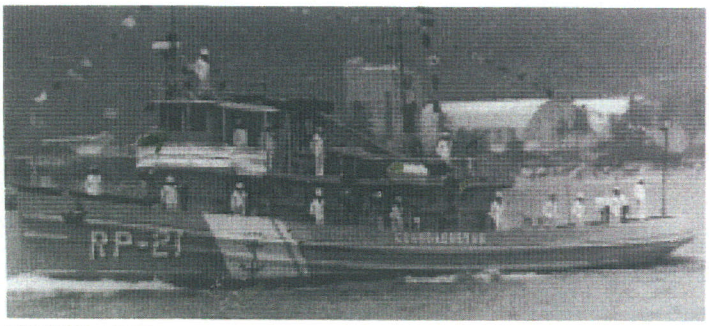

FERNANDO GOMEZ *6/1998, Venezuelan Navy* / 0050738

2 RIVER TRANSPORT CRAFT (LCM)

CURIAPO LC 21
YOPITO LC 01

Displacement, tons: 115 full load
Dimensions, feet (metres): 73.7 × 21 × 5.2 *(22.5 × 6.4 × 1.6)*
Main machinery: 2 Detroit diesels; 850 hp *(625 kW)*; 2 shafts
Speed, knots: 9
Complement: 5
Cargo capacity: 60 tons or 200 Marines
Guns: 2—12.7 mm MGs.

Comment: Details given are for *Curiapo* which is a former LCM. *Yopito* is a former LCU of 18 m. Both are used by the Marines. There are also 12 11 m LCVPs.

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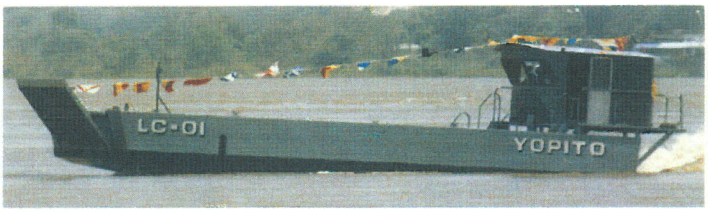

YOPITO *7/1999, Venezuelan Navy* / 0084248

NATIONAL GUARD (GUARDIA NACIONAL)

Notes: (1) There are also a large number of US and Canadian built river craft of between 6 and 9 m length, which are armed with MGs.
(2) Four intercept launches were delivered in 2003; two in July 2003 and two in October 2003.
(3) Some 60 'Pirana' class river patrol craft have been ordered. The first 15 were delivered in August 2003.

10 RIO ORINOCO II CLASS (PBF)

Displacement, tons: 30 full load
Dimensions, feet (metres): 54 × 14 × 4.6 *(16.5 × 4.3 × 1.4)*
Main machinery: 2 MTU 12V 183 TE93 diesels; 2,268 hp(m) *(1.67 MW)* sustained; 2 shafts
Speed, knots: 36. **Range, miles:** 500 at 25 kt
Complement: 5
Guns: 2—12.7 mm MGs. 2—7.62 mm MGs.
Radars: Surface search: Raytheon R1210; I-band.

Comment: Ordered from Halter Marine 24 April 1998. All delivered by late 1999. Aluminium construction. Some of the similar sized Orinoco I craft built in the 1970s are still in limited use.

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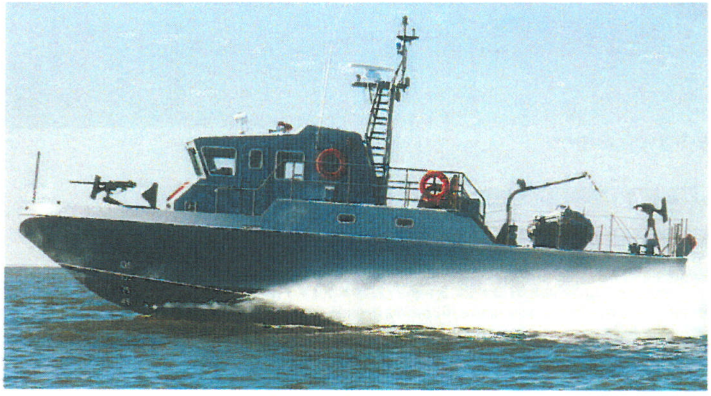

ORINOCO II *1/1999, Halter Marine* / 0050739

12 PUNTA CLASS (PB) and 12 PROTECTOR CLASS (PB)

Displacement, tons: 15 full load
Dimensions, feet (metres): 43 × 13.4 × 3.9 *(13.1 × 4.1 × 1.2)*
Main machinery: 2 MTU Series 183 diesels; 1,500 hp *(1.1 MW)*; 2 shafts
Speed, knots: 34. **Range, miles:** 390 at 25 kt
Complement: 4
Guns: 2—12.7 mm MGs.
Radars: Navigation: Raytheon; I-band.

Comment: Details given for the 'Punta' class. Ordered 24 January 1984. Built by Bertram Yacht, Miami, Florida. Names begin with *Punta*. Aluminium hulls. Completed from July-December 1984. Re-engined in 1996-97. The 'Protector' class are the same size, but are slower at 28 kt. They were built by SeaArk Marine and completed in 1984. Some are probably non-operational. Names begin with *Rio*.

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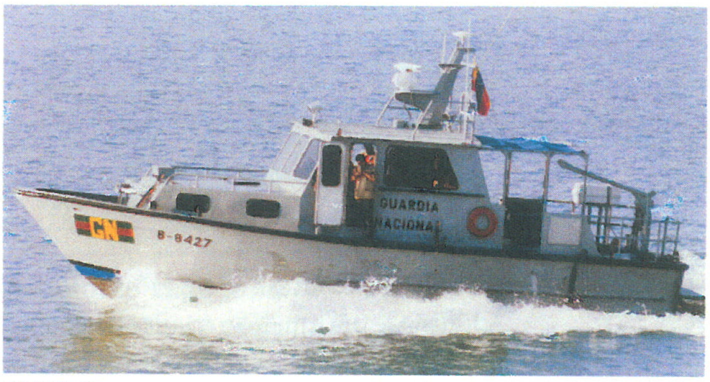

PROTECTOR *2/1996, van Ginderen Collection* / 0084249

Vietnam

Country Overview

The Socialist Republic of Vietnam was established in 1976 when the Democratic Republic of Vietnam in the north and the Republic of Vietnam in the south became one nation. The country had been divided at the 17th parallel from the end of French colonial rule in 1954 and during the ensuing Vietnam War. Located on the east coast of the Indochina peninsula, it has an area of 127,844 square miles and is bordered to the north by China and to the west by Cambodia and Laos. It has a 1,858 n mile coastline with the South China Sea. Hanoi is the capital while Ho Chi Minh City (formerly Saigon) is the largest city and a major port. There are further ports at Haiphong and Da Nang. Territorial seas (12 n miles) are claimed. An EEZ (200 n miles) has also been claimed but the limits have not been defined.

Headquarters Appointments

Chief of Naval Forces:
Vice Admiral Mai Xuan Binh
Deputy Chief of Naval Forces:
Captain Tran Quang Khue

Personnel

(a) 2004: 9,000 regulars
(b) Additional conscripts on three to four year term (about 3,000)
(c) 27,000 naval infantry

Organisation and Bases

The fleet is organised into four regions based on, from north to south, Haiphong (HQ), Da Nang, Nha Trang and Cân Tho. There are other bases at Cam Ranh Bay, Hue and Ha Tou.

Coast Guard

A Coast Guard was formed on 1 September 1998. It is subordinate to the Navy and may take on Customs duties.

SUBMARINES

2 YUGO CLASS
(MIDGET SUBMARINES) (SSW)

Displacement, tons: 90 surfaced; 110 dived
Dimensions, feet (metres): 65.6 × 10.2 × 15.1 *(20 × 3.1 × 4.6)*
Main machinery: 2 diesels; 320 hp(m) *(236 kW)*; 1 shaft
Speed, knots: 12 surfaced; 8 dived
Range, miles: 550 at 10 kt surfaced; 50 at 4 kt dived
Complement: 4 plus 6/7 divers

Comment: Transferred from North Korea in 1997. May be fitted with two short torpedo tubes and a snort mast, but used primarily for diver related operations. The conning tower acts as a wet/dry diver compartment. Operational status is doubtful.

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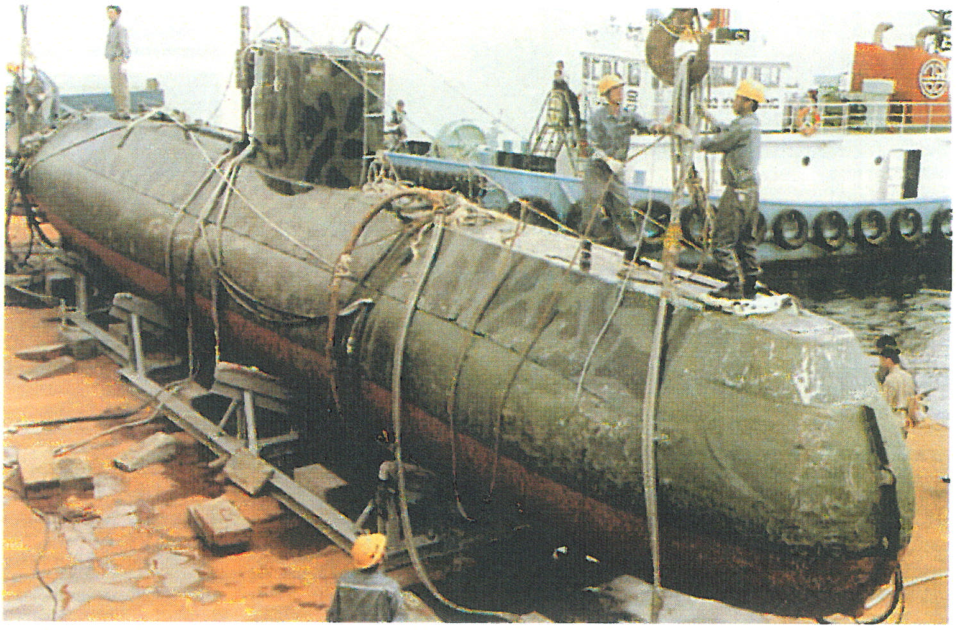

YUGO (North Korean colours)
6/1998, Ships of the World / 0052525

FRIGATES

Notes: Ex-Russian light frigates of the 'Parchim' class may be acquired.

5 PETYA (PROJECT 159A) CLASS (FFL)

HQ 09, 11 (Type III) **HQ 13, 15, 17 (Type II)**

Displacement, tons: 950 standard; 1,180 full load
Dimensions, feet (metres): 268.3 × 29.9 × 9.5 *(81.8 × 9.1 × 2.9)*
Main machinery: CODAG; 2 gas turbines; 30,000 hp(m) *(22 MW)*; 1 Type 61V-3 diesel; 5,400 hp(m) *(3.97 MW)* sustained; centre shaft; 3 shafts
Speed, knots: 32. **Range, miles:** 4,870 at 10 kt; 450 at 29 kt
Complement: 98 (8 officers)

Guns: 4 USSR 3 in *(76 mm)*/60 (2 twin); 90 rds/min to 15 km *(8 n miles)*; weight of shell 6.8 kg.
Torpedoes: 3—21 in *(533 mm)* (triple) tubes (Petya III). SAET-60; passive homing to 15 km *(8.1 n miles)* at 40 kt; warhead 400 kg.
10—16 in *(406 mm)* (2 quin) tubes (Petya II). SAET-40; active/passive homing to 10 km *(5.5 n miles)* at 30 kt; warhead 100 kg.
A/S mortars: 4 RBU 6000 12-tubed trainable (Petya II); range 6,000 m; warhead 31 kg.
4 RBU 2500 16-tubed trainable (Petya III); range 2,500 m; warhead 21 kg.
Depth charges: 2 racks.
Mines: Can carry 22.
Countermeasures: ESM: 2 Watch Dog; radar warning.
Radars: Air/surface search: Strut Curve; F-band.
Navigation: Don 2; I-band.
Fire control: Hawk Screech; I-band.
IFF: High Pole B. 2 Square Head.
Sonars: Vychada MG 311; hull-mounted; active attack; high frequency.

Programmes: Two Petya III (export version) transferred from USSR in December 1978 and three Petya IIs, two in December 1983 and one in December 1984. Petya II HQ 13 was reported decommissioned in 1996 but may have been refitted.
Modernisation: Refitted and updated 1994 to 1999. The RBUs replaced by 25 mm guns and the torpedo tubes by 37 mm guns in some of the class. *HQ 17* completed major overhaul at Ba Son Shipyard in 2001.
Structure: The Petya IIIs have the same hulls as the Petya IIs but different armament.
Operational: Reported active between the coast and the Spratly Islands.

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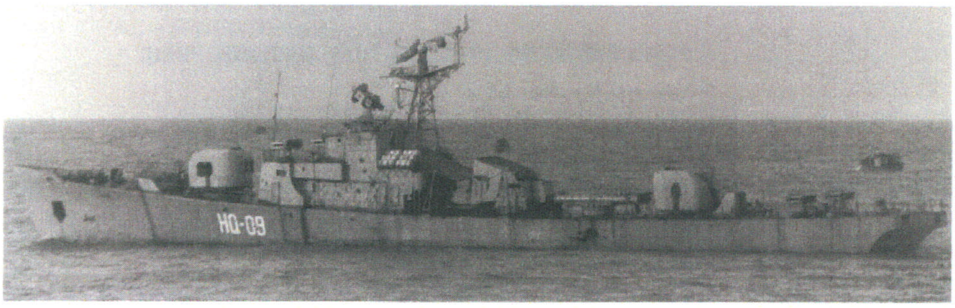


HQ 09 *9/1995, G Toremans*

HQ 17
11/2001 / 0131341

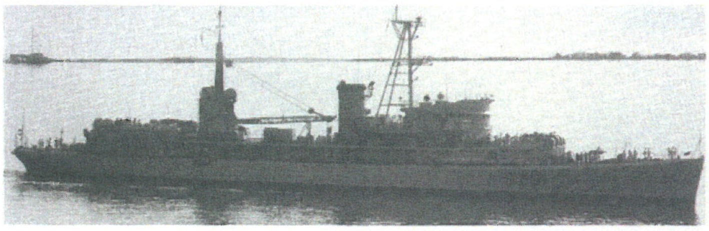
1 BARNEGAT CLASS (FF)

Name	*No*	*Builders*	*Commissioned*
PHAM NGU LAO (ex-*Absecon*)	HQ 01 (ex-WHEC 374)	Lake Washington SY	28 Jan 1943

Displacement, tons: 1,766 standard; 2,800 full load
Dimensions, feet (metres): 310.8 × 41.1 × 13.5 *(94.7 × 12.5 × 4.1)*
Main machinery: 2 Fairbanks-Morse 38D8-1/8-10 diesels; 3,540 hp *(2.64 MW)* sustained; 2 shafts
Speed, knots: 18. **Range, miles:** 20,000 at 12 kt
Complement: 200 approximately

Guns: 1 USN 5 in *(127 mm)*/38; 15 rds/min to 17 km *(9.3 n miles)*; weight of shell 25 kg. 3—37 mm/63. 4—25 mm (2 twin). 2—81 mm mortars.
Radars: Surface search: Raytheon SPS-28; A-band.
Fire control: RCA/GE Mk 26; I/J-band.

Programmes: Last of a group built as seaplane tenders for the US Navy. Transferred to US Coast Guard in 1948, initially on loan designated WAVP and then on permanent transfer, subsequently redesignated as high endurance cutter (WHEC). Transferred from US Coast Guard to South Vietnamese Navy in 1971.
Modernisation: Styx SSMs mounted aft and close-range armament fitted in the mid-1980s. The SSMs have probably been removed.
Operational: Still seaworthy but almost certainly non-operational. ***UPDATED***


BARNEGAT (Italian colours) *1991, van Ginderen Collection*

CORVETTES

Notes: (1) Ex-US 'Admirable' class *HQ 07* is an alongside training hulk.
(2) The KBO 2000 project appears to have been abandoned.

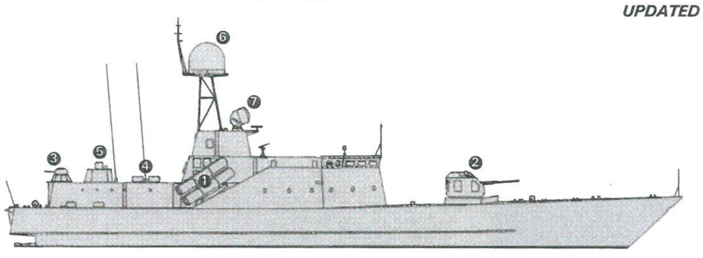
2 BPS 500 (PROJECT 12418) CLASS (FSGM)

HQ 381 +1

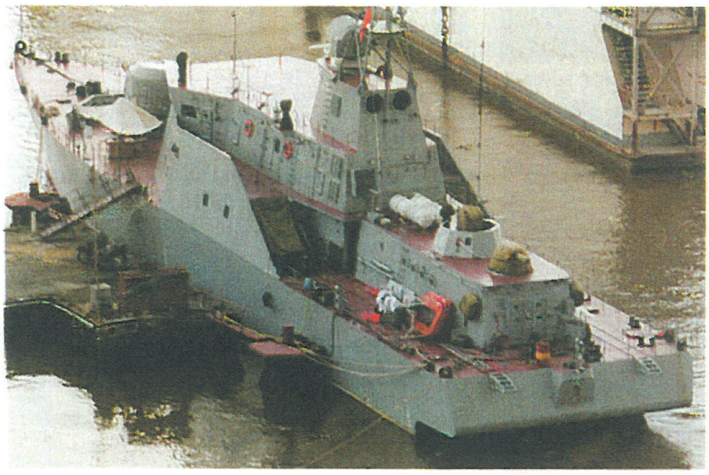
Displacement, tons: 517 full load
Dimensions, feet (metres): 203.4 × 36.1 × 8.2 *(62 × 11 × 2.5)*
Main machinery: 2 MTU diesels; 19,600 hp(m) *(14.41 MW)*; 2 Kamewa waterjets
Speed, knots: 32. **Range, miles:** 2,200 at 14 kt
Complement: 28

Missiles: SSM: 8 Zvezda SS-N-25 (KH-35 Uran) (2 quad) ❶; active radar homing to 130 km *(70.1 n miles)* at 0.9 Mach; warhead 145 kg.
SAM: SA-N-10. 24 missiles.
Guns: 1—3 in *(76 mm)*/60 ❷; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg. 1—30 mm/65 AK 630 ❸; 6 barrelled; 3,000 rds/min combined to 2 km. 2—12.7 mm MGs.
Mines: Rails fitted.
Countermeasures: Decoys: 2 chaff launchers ❹.
Weapons control: Optronic director ❺.
Radars: Air/surface search: Cross Dome ❻; E/F-band.
Navigation: I-band.
Fire control: Bass Tilt ❼; H/I-band.

Comment: Severnoye design (improved Pauk) ordered in 1996 and two ships subsequently delivered in kit form to Ba Son Shipyard, Ho Chi Minh City. First unit launched in June 1998 and became operational in late 2001. Missile systems yet to be fitted. The second unit may have been built but this has not been confirmed. ***UPDATED***



BPS 500 *(not to scale), Ian Sturton* / 0530054


HQ 381 *11/2001* / 0131340

2 TARANTUL CLASS (PROJECT 1241) (FSGM)

HQ 371 **HQ 372**

Displacement, tons: 385 standard; 450 full load
Dimensions, feet (metres): 184.1 × 37.7 × 8.2 *(56.1 × 11.5 × 2.5)*
Main machinery: 2 Nikolayev Type DR 77 gas turbines; 16,016 hp(m) *(11.77 MW)* sustained; 2 Nikolayev Type DR 76 gas turbines with reversible gearboxes; 4,993 hp(m) *(3.67 MW)* sustained; 2 shafts
Speed, knots: 36. **Range, miles:** 2,000 at 20 kt; 400 at 36 kt
Complement: 41 (5 officers)

Missiles: SSM: 4 SS-N-2D Styx; IR homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg; sea-skimmer at end of run.
SAM: SA-N-5 Grail quad launcher; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; warhead 1.5 kg.
Guns: 1—3 in *(76 mm)*/60; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg. 2—30 mm/65 AK 630; 6 barrels per mounting; 3,000 rds/min combined to 2 km.
Countermeasures: Decoys: 2 PK 16 chaff launchers.
Weapons control: Hood Wink optronic director.
Radars: Air/surface search: Plank Shave; E-band.
Navigation: Pechora; I-band.
Fire control: Bass Tilt: H/I-band.
IFF: Salt Pot, Square Head A.
Sonars: Foal Tail; active; high frequency.

Programmes: First pair ordered in October 1994. These are new hulls exported at a favourable price and completed by 1996. Some delay in delivery because of late payments, but both were in service by April 1996. The planned transfer of two further 'Tarantul II' class was not completed.
Operational: Both based at Da Nang. ***UPDATED***

HQ 372 *4/1998* / 0050740

LAND-BASED MARITIME AIRCRAFT

Notes: (1) Air Force Flankers and Filters can be used for maritime surveillance.
(2) Contract in October 2003 for the procurement of eight to 10 new Polskie Zaklady Lotnicze (PZL) M28 Skytruck short take-off and landing aircraft configured for maritime surveillance. The aircraft are variants of the PZL M28B-1R 'Bryza-1R' aircraft used by the Polish Navy. Vietnamese aircraft will be fitted with the latest version of the MSC-400 maritime surveillance system which utilises PIT's ARS-400 maritime surveillance radar and the CCS-400 command-and-control module with datalink. The initial contract involves two platforms to be delivered before the end of 2004.

Numbers/Type: 3 Beriev Be-12 Mail.
Operational speed: 328 kt *(608 km/h)*.
Service ceiling: 37,000 ft *(11,280 m)*.
Range: 4,050 n miles *(7,500 km)*.
Role/Weapon systems: Long-range ASW/MR amphibian. Sensors: Short Horn search radar, MAD, EW. Weapons: ASW; 5 tons of depth bombs, mines or torpedoes. ASV; limited missile and rocket armament. ***VERIFIED***

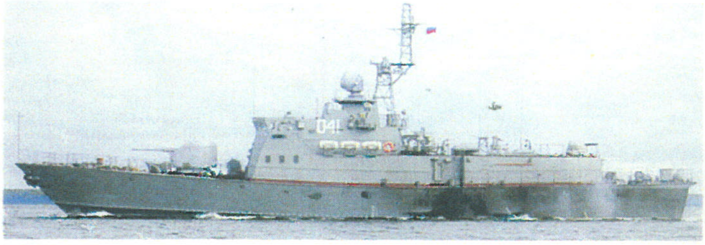
PATROL FORCES

Notes: (1) At least one 'Shanghai II' class PC may still be operational.
(2) Some of the craft listed may be transferred to the Coast Guard and Maritime Police.

2 + (10) SVETLYAK (PROJECT 1041.2) CLASS (PGM)

Displacement, tons: 365 full load
Dimensions, feet (metres): 162.4 × 30.2 × 7.9 *(49.5 × 9.2 × 2.4)*
Main machinery: 3 diesels; 15,900 hp(m) *(11.85 MW)* sustained; 3 shafts; cp props
Speed, knots: 30. **Range, miles:** 2,200 at 13 kt
Complement: 28 (4 officers)
Missiles: SAM: SA-N-10; shoulder launched and (manual aiming); IR homing to 5 km *(2.7 n miles)* at 1.7 Mach; warhead 1.5 kg.
Guns: 1—3 in *(76 mm)*/60 AK-176M; 120 rds/min to 15 km *(8 n miles)*; weight of shell 7 kg. 1—30 mm/65 AK 630; 6 barrels; 3,000 rds/min combined to 2 km.
Countermeasures: Decoys: 2 chaff launchers.
Weapons control: Hood Wink optronic director.
Radars: Air/surface search: Peel Cone; E-band.
Fire control: Bass Tilt; H/I-band.
Navigation: Palm Frond B; I-band.

Comment: Contract for two craft signed with Almaz, St Petersburg in November 2001. First vessel launched on 17 July 2002 and second on 30 July 2002. Following acceptance on 17 October 2002, both vessels were shipped from St Petersburg on 14 December 2002. A further order of 10 to 12 vessels is projected. ***UPDATED***


SVETLYAK 041 *9/2002, Almaz* / 0530061

8 OSA II CLASS (FAST ATTACK CRAFT—MISSILE) (PTFG)

HQ 354-361

Displacement, tons: 245 full load
Dimensions, feet (metres): 126.6 × 24.9 × 8.8 *(38.6 × 7.6 × 2.7)*
Main machinery: 3 Type M 504 diesels; 10,800 hp(m) *(7.94 MW)* sustained; 3 shafts
Speed, knots: 37. **Range, miles:** 500 at 35 kt
Complement: 30
Missiles: SSM: 4 SS-N-2B Styx; active radar or IR homing to 46 km *(25 n miles)* at 0.9 Mach; warhead 513 kg.
Guns: 4 USSR 30 mm/65 (2 twin); 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
Radars: Surface search: Square Tie; I-band.
Fire control: Drum Tilt; H/I-band.
IFF: High Pole. 2 Square Head.

Comment: Transferred from USSR: two in October 1979, two in September 1980, two in November 1980 and two in February 1981. All based at Da Nang. Operational status doubtful.

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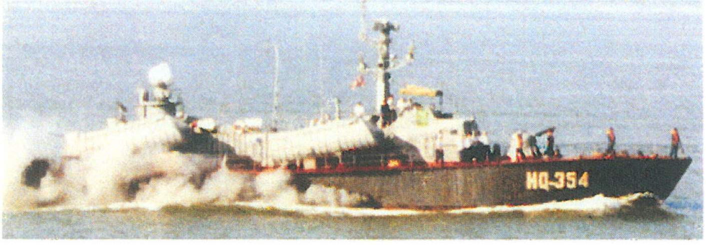

OSA II 354 *5/2000, Bob Fildes* / 0105740

5 TURYA (PROJECT 206M) CLASS (FAST ATTACK CRAFT—HYDROFOIL) (PCK)

HQ 321, HQ 331-332, HQ 334-335

Displacement, tons: 190 standard; 250 full load
Dimensions, feet (metres): 129.9 × 29.9 (41 over foils) × 5.9 (13.1 over foils)
39.6 × 7.6 (12.5) × 1.8 (4))
Main machinery: 3 Type M 504 diesels; 10,800 hp(m) *(7.94 MW)* sustained; 3 shafts
Speed, knots: 40. **Range, miles:** 600 at 35 kt foilborne; 1,450 at 14 kt hullborne
Complement: 30
Guns: 2 USSR 57 mm/70 (twin, aft); 120 rds/min to 8 km *(4.4 n miles)*; weight of shell 2.8 kg.
2 USSR 25 mm/80 (twin, fwd); 270 rds/min to 3 km *(1.6 n miles)*; weight of shell 0.34 kg.
Torpedoes: 4—21 in *(533 mm)* tubes (not in all).
Depth charges: 2 racks.
Radars: Surface search: Pot Drum; H/I-band.
Fire control: Muff Cob; G/H-band.
IFF: High Pole B. Square Head.
Sonars: Foal Tail (not in all); VDS; high frequency.

Comment: Transferred from USSR: two in mid-1984, one in late 1984, two in January 1986. Two more acquired from Russia. Two of the five do not have torpedo tubes or sonar. Two scrapped so far, the remainder are probably non-operational.

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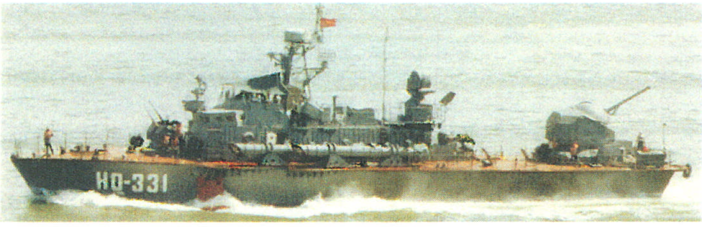


TURYA 331 *5/2000, Bob Fildes* / 0105741

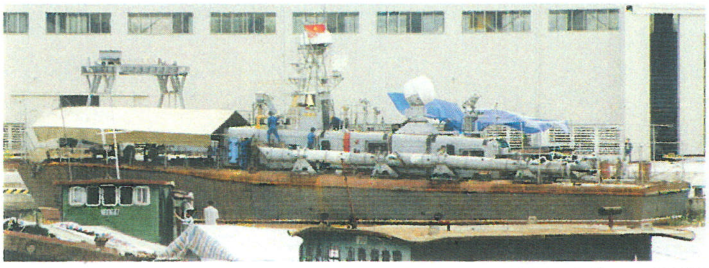
3 SHERSHEN (PROJECT 206) CLASS (FAST ATTACK CRAFT) (PTFM)

HQ 301 series

Displacement, tons: 145 standard; 170 full load
Dimensions, feet (metres): 113.8 × 22 × 4.9 *(34.7 × 6.7 × 1.5)*
Main machinery: 3 Type 503A diesels; 8,025 hp(m) *(5.9 MW)* sustained; 3 shafts
Speed, knots: 45. **Range, miles:** 850 at 30 kt; 460 at 42 kt
Complement: 23
Missiles: SAM: 1 SA-N-5 Grail quad launcher; manual aiming; IR homing to 6 km *(3.2 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.5 kg.
Guns: 4 USSR 30 mm/65 (2 twin); 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
Torpedoes: 4—21 in *(533 mm)* tubes (not in all).
Depth charges: 2 racks (12).
Mines: Can carry 6.
Radars: Surface search: Pot Drum; H/I-band.
Fire control: Drum Tilt; H/I-band.
IFF: High Pole A. Square Head.

Comment: A total of 16 transferred from USSR: two in 1973, two in April 1979 (without torpedo tubes), two in September 1979, two in August 1980, two in October 1980, two in January 1983 and four in June 1983. Most have been cannibalised for spares.

UPDATED



SHERSHEN (refitting in Haiphong) *8/2000, P Marsan* / 0105742

4 + (12) STOLKRAFT CLASS (PBR)

HQ 56-59

Displacement, tons: 44 full load
Dimensions, feet (metres): 73.5 × 24.6 × 3.9 *(22.4 × 7.5 × 1.2)*
Main machinery: 2 MTU 12V 183 TE93 diesels; 2,301 hp(m) *(1.69 MW)* sustained; 2 Doen waterjets
1 Volvo Penta diesel; 360 hp(m) *(265 kW)*; 1 shaft
Speed, knots: 30
Complement: 7
Guns: 1 Oerlikon 20 mm.

Comment: First four built by Oceanfast Marine, Western Australia and delivered in early 1997. Trimaran construction forward, transforming into a catamaran at the stern. Shallow draft needed for inshore and river operations. The centreline single shaft is used for loitering. The craft show the colours of the Customs department. Up to 12 more may be built in Vietnam, when funds are available.

VERIFIED

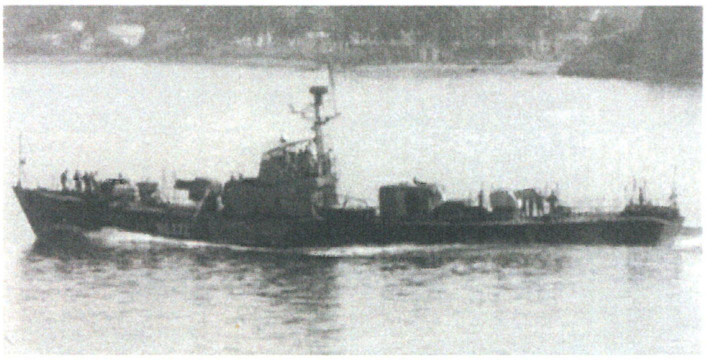
3 SO 1 (PROJECT 201M) CLASS (LARGE PATROL CRAFT) (PB)

HQ 3275 **HQ 3277** **HQ 3278**

Displacement, tons: 170 standard; 215 full load
Dimensions, feet (metres): 137.8 × 19.7 × 5.9 *(42 × 6 × 1.8)*
Main machinery: 3 Kolomna Type 40-D diesels; 6,600 hp(m) *(4.8 MW)* sustained; 3 shafts
Speed, knots: 28. **Range, miles:** 1,100 at 13 kt; 350 at 28 kt
Complement: 31
Guns: 4 USSR 25 mm/80 (2 twin); 270 rds/min to 3 km *(1.6 n miles)*; weight of shell 0.34 kg.
A/S mortars: 4 RBU 1200 5-tubed fixed; range 1,200 m; warhead 34 kg.
Depth charges: 2 racks (24).
Mines: 10.
Radars: Surface search: Pot Head; I-band.
IFF: High Pole A. Dead Duck.

Comment: Transferred from USSR: two in March 1980, two in September 1980, two in May 1981, and two in September 1983. Four more of this class were transferred in 1960-63 but have been deleted, as have four others. Based at Da Nang.

UPDATED



SO 1 *1984*

14 ZHUK (PROJECT 1400M) CLASS (PB)

Displacement, tons: 39 full load
Dimensions, feet (metres): 78.7 × 16.4 × 3.9 *(24 × 5 × 1.2)*
Main machinery: 2 Type M 401B diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,100 at 15 kt
Complement: 11 (3 officers)
Guns: 4—14.5 mm (2 twin) MGs.
Radars: Surface search: Spin Trough; I-band.

Comment: Transferred: three in 1978, three in November 1979, one in November 1981, one in May 1985, three in February 1986, two in December 1989, two in January 1990, three in January 1996, two in January 1998 and two in April 1998. So far seven have been deleted but operational numbers are uncertain. Some may be allocated to the Coast Guard.

UPDATED

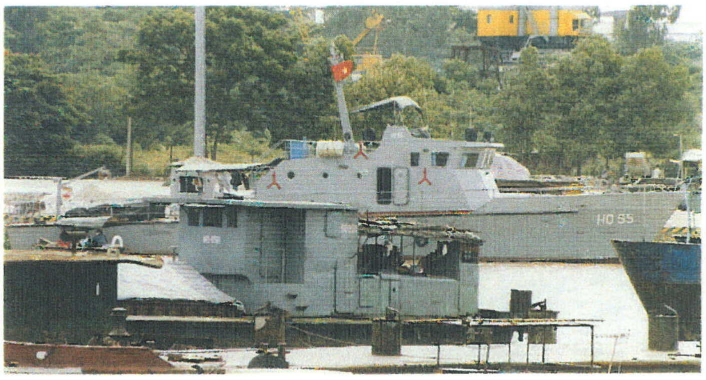
4 MODIFIED ZHUK CLASS (PB)

HQ 37 **HQ 55** **+2**

Displacement, tons: 38 full load
Dimensions, feet (metres): 95.1 ×? × ? *(29.0 × ? × ?)*
Main machinery: 2 Saab Scania diesels; 2,500 hp(m) *(18.64 MW)* sustained; 2 shafts
Speed, knots: 30
Complement: 11 (3 officers)
Guns: 2—12.7 mm MGs (2 twin).
Radars: Navigation: I-band.

Comment: Built in Vietnam to design based on 'Zhuk' class.

NEW ENTRY

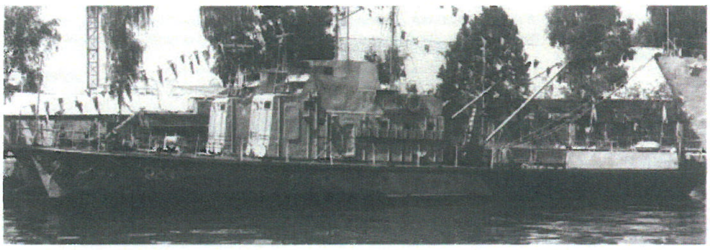


HQ 55 (under construction) *8/2000, P Marsan* / 0105744

2 POLUCHAT (PROJECT 368) CLASS
(COASTAL PATROL CRAFT) (PB/YPT)

Displacement, tons: 100 full load
Dimensions, feet (metres): 97.1 × 19 × 4.8 *(29.6 × 5.8 × 1.5)*
Main machinery: 2 Type M 50 diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 20. **Range, miles:** 1,500 at 10 kt
Complement: 15
Guns: 2—12.7 mm MGs.
Radars: Navigation: Spin Trough; I-band.

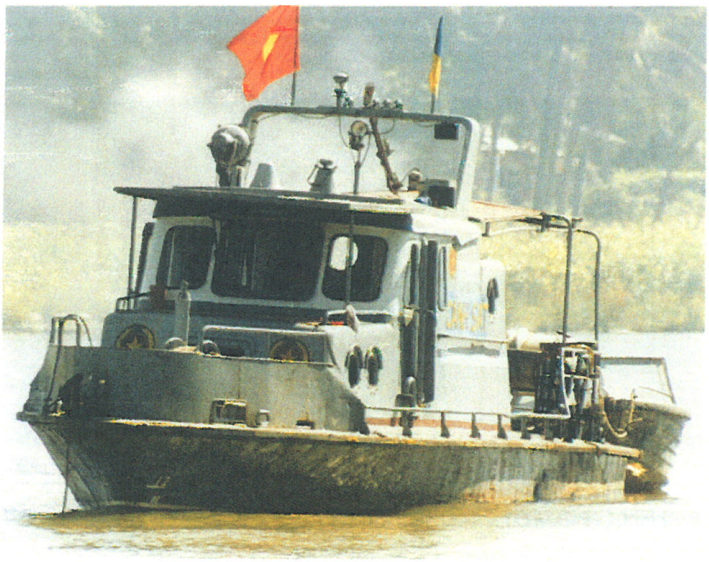
Comment: Both transferred from USSR in January 1990. Can be used as torpedo recovery vessels.
VERIFIED



POLUCHAT (Russian colours) *7/1993, Hartmut Ehlers*

RIVER PATROL CRAFT

Comment: There are large numbers of river patrol boats, mostly armed with MGs. A 14.5 m craft ordered from Singapore TSE in 1994. More are being built locally with Volvo Penta engines.
VERIFIED



RIVER PATROL BOAT *8/2000, P Marsan* / 0105743

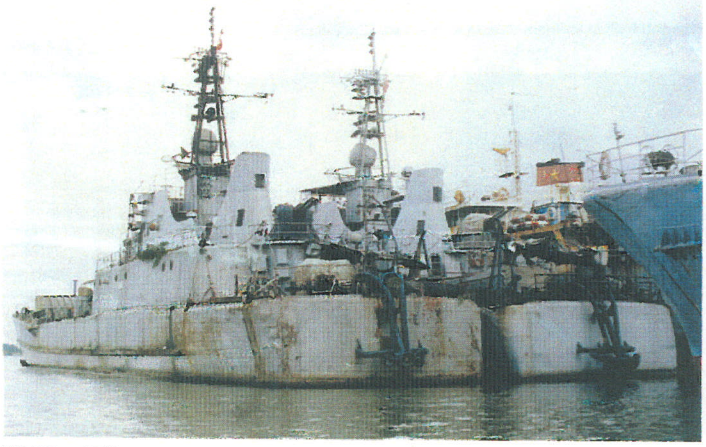
AMPHIBIOUS FORCES

3 POLNOCHNY (PROJECT 771) CLASS (LCM)

HQ 511 **HQ 512** **HQ 513**

Displacement, tons: 760 standard; 834 full load
Dimensions, feet (metres): 246.1 × 31.5 × 7.5 *(75 × 9.6 × 2.3)*
Main machinery: 2 Kolomna Type 40-D diesels; 4,400 hp(m) *(3.2 MW)* sustained; 2 shafts
Speed, knots: 19
Complement: 40
Guns: 2 or 4 USSR 30 mm/65 (1 or 2 twin). 2—140 mm rocket launchers.
Radars: Surface search: Spin Trough; I-band.
Fire control: Drum Tilt; H/I-band.

Comment: Transfers from USSR: one in May 1979 (B), one in November 1979 (A) and one in February 1980 (B). Details are for 'Polnochny B' class. All are reported to be in poor condition.
UPDATED



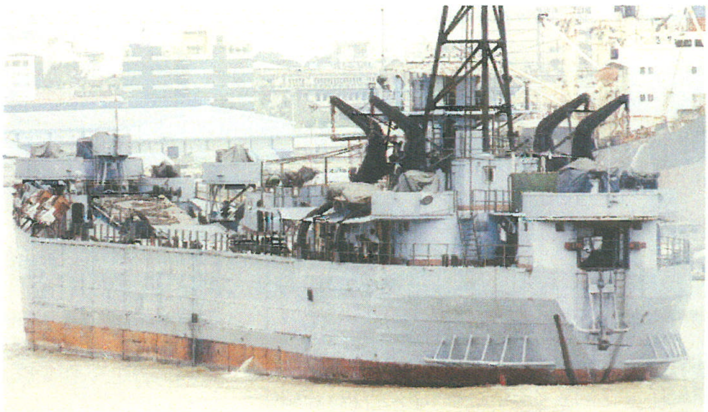
HQ 512 and 513 *6/1995, Giorgio Arra* / 0084254

1 LST 1-510 CLASS (LST) and 2 LST 512-1152 CLASS (LST)

TRAN KHANH DU (ex-Da Nang, ex-*Maricopa County* LST 938) HQ 501
VUNG TAU (ex-*Cochino County* LST 603) HQ 503
QUI NONH (ex-*Bulloch County* LST 509) HQ 502

Displacement, tons: 2,366 beaching; 4,080 full load
Dimensions, feet (metres): 328 × 50 × 14 *(100 × 15.2 × 4.3)*
Main machinery: 2 GM 12-567A diesels; 1,800 hp *(1.34 MW)*; 2 shafts
Speed, knots: 11. **Range, miles:** 6,000 at 10 kt
Complement: 110
Guns: 8 Bofors 40 mm/60 (2 twin, 4 single). 4 Oerlikon 20 mm.

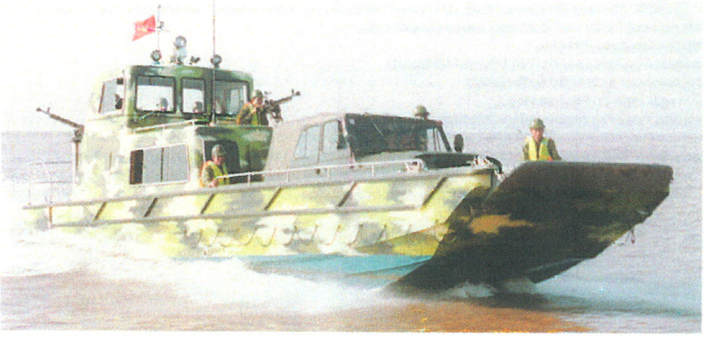
Comment: Built in 1943-44. Transferred from US to South Vietnam in mid-1960s. Seldom seen at sea.
VERIFIED



TRAN KHANH DU *8/2000* / 0105745

30 LANDING CRAFT (LCM and LCU)

Comment: About five LCUs, 12 LCM 8 and LCM 6, and three LCVPs remain of the 180 minor landing craft left behind by the USA in 1975. In addition there are about 10 T4 LCUs acquired from the USSR in 1979.
VERIFIED



LCU *6/2001* / 0131363

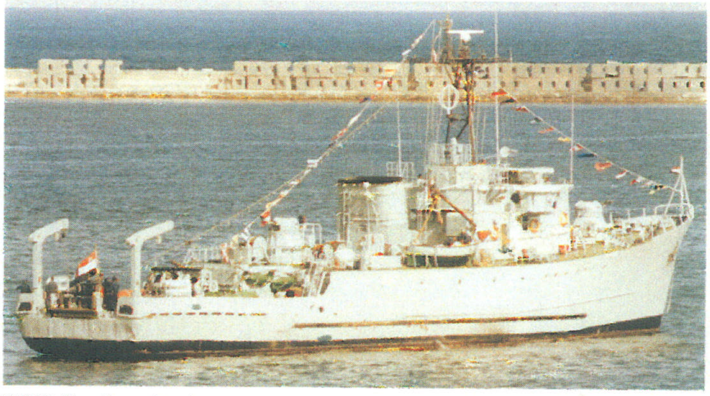
MINE WARFARE FORCES

2 YURKA (RUBIN) (PROJECT 266) CLASS
(MINESWEEPER—OCEAN) (MSO)

HQ 851 **HQ 885**

Displacement, tons: 540 full load
Dimensions, feet (metres): 171.9 × 30.8 × 8.5 *(52.4 × 9.4 × 2.6)*
Main machinery: 2 Type M 503 diesels; 5,350 hp(m) *(3.91 MW)* sustained; 2 shafts
Speed, knots: 17. **Range, miles:** 1,500 at 12 kt
Complement: 45
Guns: 4 USSR 30 mm/65 (2 twin); 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
Mines: 10.
Radars: Surface search: Don 2; I-band.
Fire control: Drum Tilt; H/I-band.
Sonars: Stag Ear; hull-mounted; active minehunting; high frequency.

Comment: Transferred from USSR December 1979. Steel-hulled, built in early 1970s.
VERIFIED



YURKA (Egyptian colours) *10/1998, F Sadek* / 0017818

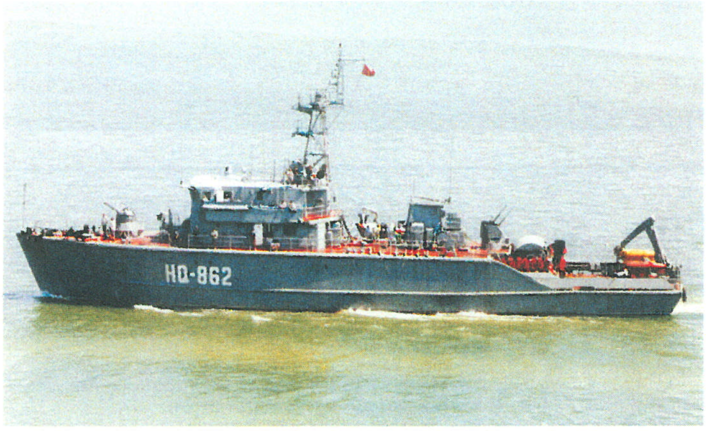
4 SONYA (YAKHONT) (PROJECT 1265) CLASS (MINESWEEPER/HUNTER—COASTAL) (MHSC)

HQ 861 **HQ 862** **HQ 863** **HQ 864**

Displacement, tons: 450 full load
Dimensions, feet (metres): 157.4 × 28.9 × 6.6 *(48 × 8.8 × 2)*
Main machinery: 2 Kolomna 9-D-8 diesels; 2,000 hp(m) *(1.47 MW)* sustained; 2 shafts
Speed, knots: 15. **Range, miles:** 3,000 at 10 kt
Complement: 43
Guns: 2 USSR 30 mm/65 AK 630. 2—25 mm/80 (twin).
Mines: 8.
Radars: Surface search: Nayada; I-band.
Sonars: MG 69/79; active; high frequency.

Comment: First one transferred from USSR 16 February 1987, second in February 1988, third in July 1989, fourth in March 1990. Two based at Da Nang.

VERIFIED



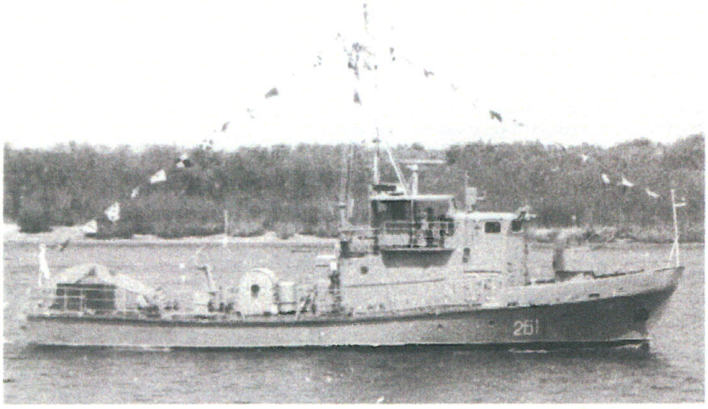
SONYA 862 *5/2000, R Fildes /* 0105746

2 YEVGENYA (KOROND) (PROJECT 1258) CLASS (MINEHUNTER—INSHORE) (MHI)

Displacement, tons: 90 full load
Dimensions, feet (metres): 80.7 × 18 × 4.9 *(24.6 × 5.5 × 1.5)*
Main machinery: 2 Type 3-D-12 diesels; 600 hp(m) *(440 kW)* sustained; 2 shafts
Speed, knots: 11. **Range, miles:** 300 at 10 kt
Complement: 10
Guns: 2 USSR 25 mm/80 (twin).
Mines: 8.
Radars: Surface search: Spin Trough; I-band.
Sonars: MG 7; active; high frequency.

Comment: First transferred from USSR in October 1979; two in December 1986. One deleted in 1990.

VERIFIED



YEVGENYA (Russian colours) *1993, B Lemachko*

5 K 8 (PROJECT 361T) CLASS (MINESWEEPING BOATS) (PBR)

Displacement, tons: 26 full load
Dimensions, feet (metres): 55.4 × 10.5 × 2.6 *(16.9 × 3.2 × 0.8)*
Main machinery: 2 Type 3-D-6 diesels; 300 hp(m) *(220 kW)* sustained; 2 shafts
Speed, knots: 18
Complement: 6
Guns: 2—14.5 mm (twin) MGs.

Comment: Transferred from USSR in October 1980. Probably used as river patrol craft.

VERIFIED

SURVEY SHIPS

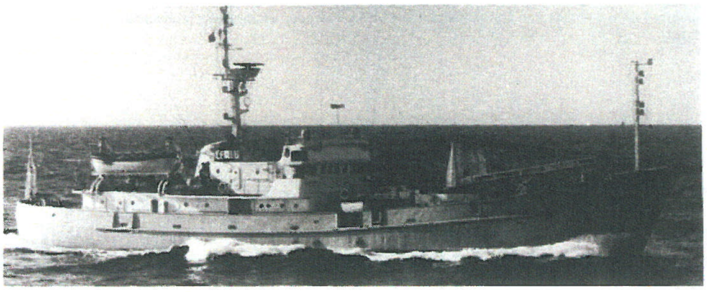
Notes: A new survey ship of 2,500 tons is required.

1 KAMENKA (PROJECT 870) CLASS (AGS)

Displacement, tons: 760 full load
Dimensions, feet (metres): 175.5 × 29.8 × 8.5 *(53.5 × 9.1 × 2.6)*
Main machinery: 2 Sulzer diesels; 1,800 hp(m) *(1.32 MW)*; 2 shafts; cp props
Speed, knots: 14. **Range, miles:** 4,000 at 10 kt
Complement: 25
Radars: Navigation: Don 2; I-band.

Comment: Transferred from USSR December 1979. Built at Northern Shipyard, Gdansk in the late 1960s. May be civilian manned.

VERIFIED



KAMENKA (Russian colours) *1984*

AUXILIARIES

Notes: In addition to the vessels listed below there are two YOG 5 fuel lighters, two floating cranes, two ex-USSR unarmed Nyryat 2 diving tenders, two PO 2 harbour launches, a 'Sorum' class ocean-going tug (BD 105) and approximately ten harbour tugs.

17 OFFSHORE SUPPLY VESSELS (AKL)

TRUONG HQ 966
BD 621-622
BD 630-632
HQ 601
HQ 614
HQ 618
HQ 619
HQ 643
HQ 651
HQ 661
HQ 669
HQ 670
HQ 671
HQ 673

Measurement, tons: 1,000 dwt
Dimensions, feet (metres): 231.6 × 38.7 × 13.1 *(70.6 × 11.8 × 4)*
Main machinery: 1 diesel; 1 shaft
Speed, knots: 12
Complement: 30

Comment: Details are for HQ 966 launched at Halong Shipyard in June 1994. This is one of a group of 20 freighters reported as used by the Navy for coastal transport, and to service the Spratleys garrison. BD pennant numbers have been assigned to Spratly Islands service. The ships are of various sizes and include fishing vessels adapted for supply tasks. All are likely to be armed with machine guns.

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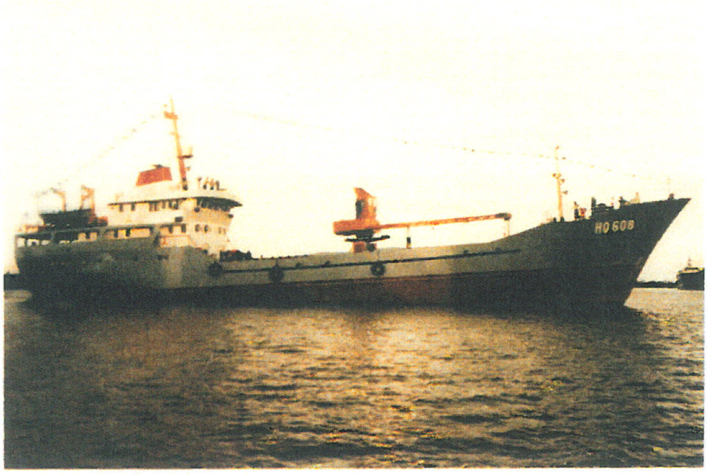

BD 621 (old number) *3/1997 /* 0050742

2 FLOATING DOCKS

Comment: One has a lift capacity of 8,500 tons. Transferred from USSR August 1983. Second one *(Khersson)* has a lift capacity of 4,500 tons and was supplied in 1988.

VERIFIED

Virgin Islands

Country Overview

A British dependency, the British Virgin Islands are situated in the eastern Caribbean Sea at the northern end of the Leeward Islands in the Lesser Antilles chain. Puerto Rico lies some 52 n miles to the west. Comprising a group of 36 islands, 16 of them inhabited, and more than 20 islets and cays there are four main islands: Tortola (21 square miles); Anegada (15 square miles); Virgin Gorda (8 square miles); and Jost Van Dyke (3.5 square miles). Other inhabited islands include Peter Island, Cooper Island, Beef Island, Salt Island, and Norman Island. The capital, only town and principal port is Road Town, Tortola. Territorial seas (3 n miles) and a Fishery Zone (200 n miles) are claimed. The remainder of the Virgin Islands form a separate external territory of the US.

Headquarters Appointments

Commissioner of British Virgin Islands Police:
Barry W Webb

Bases

Road Town, Tortola

POLICE

Notes: Following the withdrawal of *St Ursula* from service in 2003, procurement of a replacement craft is expected in 2004.

2 DAUNTLESS CLASS (PBI)

Displacement, tons: 12 full load
Dimensions, feet (metres): 40 × 14 × 4.3 *(12.2 × 4.3 × 1.3)*
Main machinery: 3 Cummins diesels; 900 hp *(671 kW)*; 3 water-jets
Speed, knots: 31. **Range, miles:** 500 at 18 kt
Complement: 5
Guns: 2—7.62 mm MGs.
Radars: Surface search: Raytheon; I-band.

Comment: First one built by SeaArk Marine and commissioned in January 1994 by the USVI after transfer by US grant aid from the Border Patrol. Unusually for this class, three engines were fitted to give a higher top speed. Second of class delivered in January 1999 and used as a Pilot craft.

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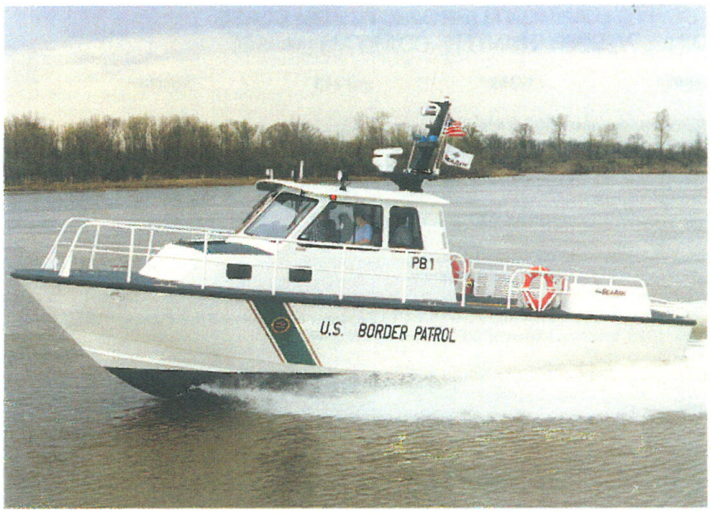


DAUNTLESS CLASS (US colours)
1993, SeaArk Marine / 0105769

Yemen

Country Overview

The Republic of Yemen was formed in 1990 through the union of the People's Democratic Republic of Yemen and the Yemen Arab Republic. The country includes the islands of Socotra, Kamaran and Perim. With an area of 207,285 square miles, it is situated on the south-west coast of the Arabian Peninsula and is bordered to the north by Saudi Arabia and to the east by Oman. It has a 1,030 n mile coastline with the Red Sea and the Gulf of Aden, which are linked by a strategic strait, the Bab el Mandeb. The capital and largest city is Sanaa while the principal ports are Aden and Al Hudaydah. Territorial seas (12 n miles) are claimed. A 200 n mile EEZ has been claimed but the limits have only been partly defined by boundary agreements.

Headquarters Appointments

Chief of Navy:
Admiral Abdel-Karim Yahya Moharrem

Personnel

2004: 1,700 naval plus 500 marines

Bases

Main: Aden, Hodeida
Secondary: Mukalla, Perim, Socotra, Al Katib
Coast Defence regions: Al Ghaydah, Aden and Cameron Island

Coast Defence

Two mobile SS-C-3 Styx batteries. Some 100 mm guns installed in tank turrets at Perim Island.

DELETIONS

Auxiliaries

2002 *Toplivos 135 and 140*

PATROL FORCES

Notes: In addition there are two 'Osa IIs', 122 and 124. One is in a poor state of repair and may have been decommissioned. The other was sighted in a floating dock in mid-2002 and may be seaworthy, although the SSM system is probably not operational.

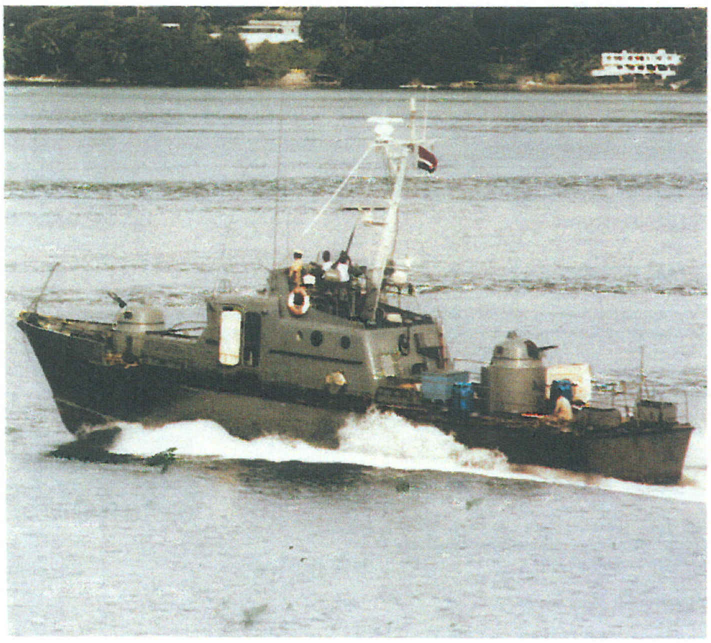
2 ZHUK CLASS (PROJECT 1400M) (PB)

202 **203**

Displacement, tons: 39 full load
Dimensions, feet (metres): 78.7 × 16.4 × 3.9 *(24 × 5 × 1.2)*
Main machinery: 2 Type M 401B diesels; 2,200 hp(m) *(1.6 MW)* sustained; 2 shafts
Speed, knots: 30. **Range, miles:** 1,100 at 15 kt
Complement: 11 (3 officers)
Guns: 4—14.5 mm (2 twin) MGs.
Radars: Surface search: Spin Trough; I-band.

Comment: Two delivered from USSR in December 1984 and three in January 1987. Three have been cannibalised for spares. One based at Aden, one at Al Katib. Used as utility craft including target towing.

VERIFIED



ZHUK ***3/1990*** / 0084258

1 TARANTUL I CLASS (PROJECT 1241) (FSGM)

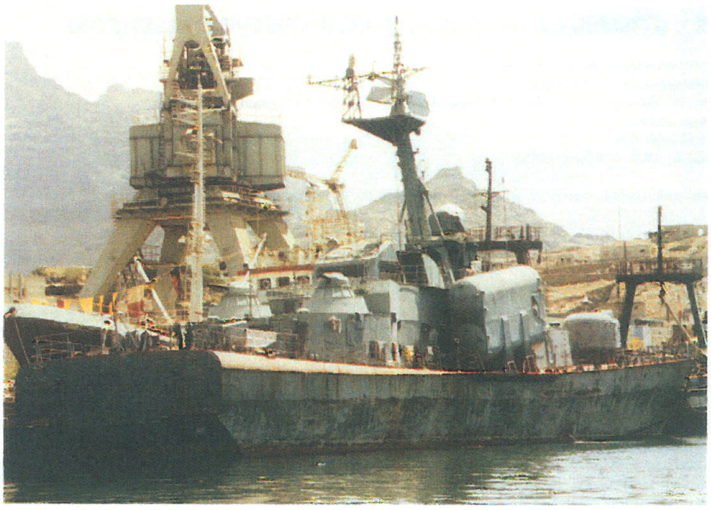
124 (ex-971)

Displacement, tons: 385 standard; 580 full load
Dimensions, feet (metres): 184.1 × 37.7 × 8.2 *(56.1 × 11.5 × 2.5)*
Main machinery: 2 Nikolayev Type DR 77 gas turbines; 16,016 hp(m) *(11.77 MW)* sustained; 2 Nikolayev Type DR 76 gas turbines with reversible gearboxes; 4,993 hp(m) *(3.67 MW)* sustained; 2 shafts
Speed, knots: 36. **Range, miles:** 400 at 36 kt; 2,000 at 20 kt
Complement: 50

Missiles: SSM: 4 SS-N-2C Styx (2 twin) launchers; active radar or IR homing to 83 km *(45 n miles)* at 0.9 Mach; warhead 513 kg; sea-skimmer at end of run.
SAM: SA-N-5 Grail quad launcher; manual aiming; IR homing to 10 km *(5.4 n miles)* at 1.5 Mach; altitude to 2,500 m *(8,000 ft)*; warhead 1.1 kg.
Guns: 1—3 in *(76 mm)*/60; 120 rds/min to 7 km *(3.8 n miles)*; weight of shell 7 kg.
2—30 mm/65 AK 630; 6 barrels per mounting; 3,000 rds/min to 2 km.
Countermeasures: Decoys: 2 PK 16 chaff launchers.
Weapons control: Hood Wink optronic director.
Radars: Air/surface search: Plank Shave (also for missile control); E-band.
Navigation: Spin Trough; I-band.
Fire control: Bass Tilt; H/I-band.
IFF: Square Head. High Pole.

Programmes: First one delivered from USSR 7 December 1990, second on 15 January 1991. This is the standard export version.
Operational: Facilities for servicing missiles in Aden were destroyed in mid-1994 but one of the class is still in a reasonable state of repair although probably without missiles.

VERIFIED



TARANTUL 124 ***10/1995*** / 0016612

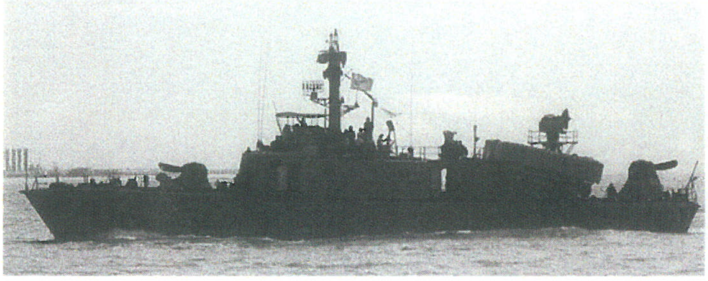
3 HUANGFEN (TYPE 021) CLASS (FAST ATTACK CRAFT—MISSILE) (PTFG)

126 **127** **128**

Displacement, tons: 171 standard; 205 full load
Dimensions, feet (metres): 126.6 × 24.9 × 8.9 *(38.6 × 7.6 × 2.7)*
Main machinery: 3 Type 42-160 diesels; 12,000 hp(m) *(8.8 MW)* sustained; 3 shafts
Speed, knots: 35. **Range, miles:** 800 at 30 kt
Complement: 28
Missiles: SSM: 4 YJ-1 (Eagle Strike) (C-801); inertial cruise; active radar homing to 40 km *(22 n miles)* at 0.9 Mach; warhead 165 kg; sea-skimmer.
Guns: 4 30 mm/(2 twin AK 230); 500 rds/min to 5 km *(2.7 n miles)*.
Radars: Surface search: Square Tie; I-band.
Fire control: Rice Lamp; H/I-band.
IFF: 2 Square Head. High Pole A.

Comment: Modified Huangfen type. Delivered on 6 June 1995 at Aden having been built by the China Shipbuilding Corporation and completed in 1993. Payment was delayed by the Yemeni civil war. Based at Al Katib. *128* ran aground in September 1997 but was salvaged and may be operational again. *126* is in a reasonable state of repair but is not armed with missiles.

UPDATED



HUANGFEN 126 *5/1995*

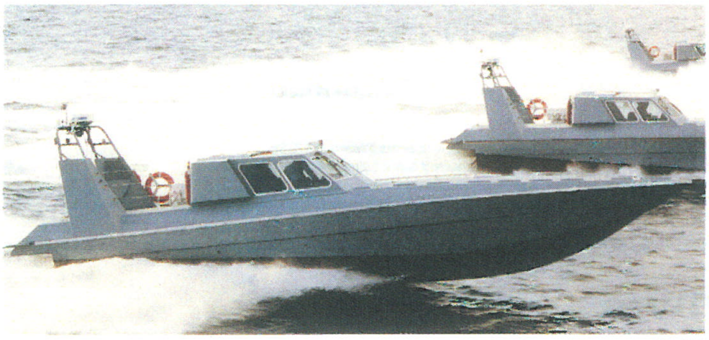
6 BAKLAN CLASS (HSIC)

BAKLAN 1201	**ZUHRAB** 1203	**HUNAISH** 1205
SIYAN 1202	**AKISSAN** 1204	**ZAKR** 1206

Displacement, tons: 12 full load
Dimensions, feet (metres): 50.9 × 9.8 × 2.6 *(15.5 × 3 × 0.8)*
Main machinery: 2 diesels; 2 surface drives
Speed, knots: 55. **Range, miles:** 400 at 30 kt
Complement: 4
Guns: 2—12.7 mm MGs.
Radars: Surface search: Furuno; I-band.

Comment: Ordered from CMN Cherbourg on 3 March 1996. First five were delivered 1 August 1996 and the last one in mid-1997. Top speed in Sea States up to 3. Composite hull construction.

UPDATED



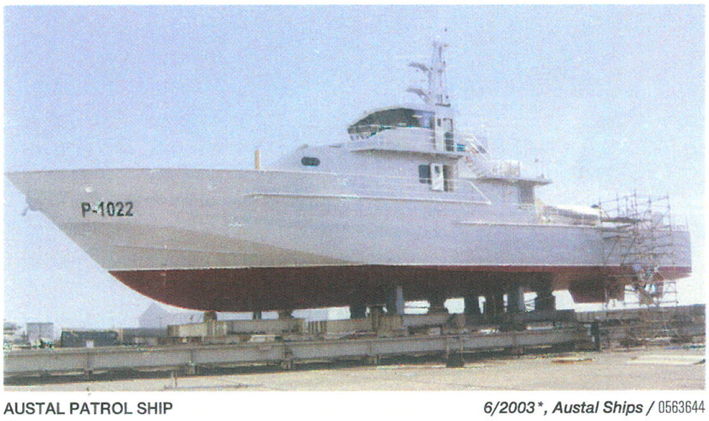
BAKLAN CLASS *8/1996, C M N Cherbourg /* 0084259

4 + 6 AUSTAL PATROL SHIPS (PB)

Displacement, tons: To be announced
Dimensions, feet (metres): 123.0 × 23.6 × 7.2 *(37.5 × 7.2 × 2.2)*
Main machinery: 2 Caterpillar 3512 diesels; 3,500 hp *(2.61 MW)*; 2 shafts
Speed, knots: 29. **Range, miles:** 1,000 at 25 kt
Complement: 19 (3 officers)
Guns: 1 Rafael Typhoon 25 mm; 2—12.7 mm MGs.

Comment: Contract with Austal Ships on 9 June 2003 for a total of 10 patrol craft, the first four of which are to be delivered in mid-2004 and the remainder by the end of 2004. Of aluminium construction, the design is based on the 'Bay' class Australian Customs vessels. The contract includes engineering and practical training for 60 Yemeni crew.

NEW ENTRY



AUSTAL PATROL SHIP *6/2003*, Austal Ships /* 0563644

AMPHIBIOUS FORCES

Notes: Ropucha 139 is an alongside hulk and is to be replaced by the 'NS-722' class.

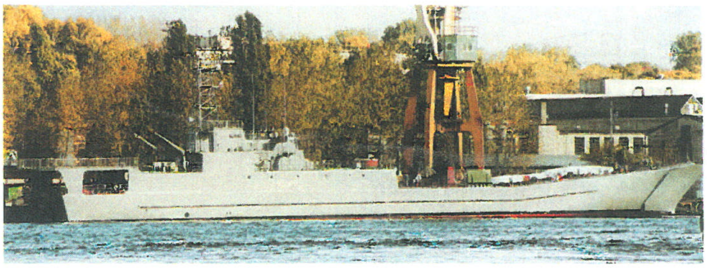
1 NS-722 CLASS (LSMM)

BILQUIS

Displacement, tons: 1,383 full load
Dimensions, feet (metres): 295.4 × 31.8 × 7.9 *(90 × 9.7 × 2.4)*
Main machinery: 2 Caterpillar diesels; 5,670 hp *(4.2 MW)*; 2 shafts
Speed, knots: 18
Complement: 49
Military lift: 5 T-72 tanks and 111 marines
Missiles: SAM: SA-16 or ZM Mesko.
Guns: 4 ZSU-23-2MR Wrobel 23 mm (2 twin).

Comment: Ordered in late 1999 for delivery in 2002, development of the 'Polnochny' class built by Naval Shipyard Gdynia, Poland. Shipped from Poland to Yemen on 24 May 2002. Roles include disaster relief and cadet training as well as amphibious warfare.

UPDATED



BILQUIS *10/2001, J Ciślak /* 0131343

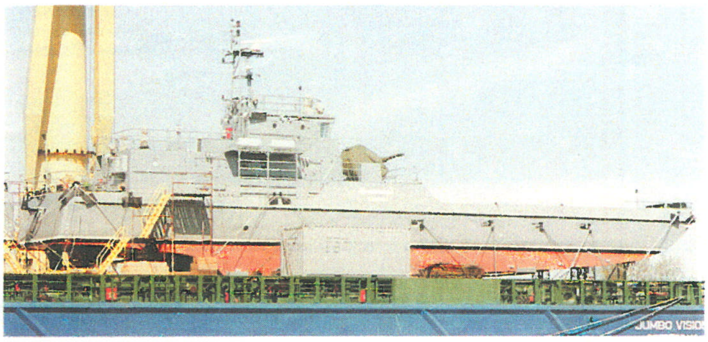
3 DEBA CLASS (PROJECT NS-717) (LCU)

HIMYER (ex-*Dhaffar*)	**SABA**	**ABDULKORI** (ex-*Thamoud*)

Displacement, tons: 221 full load
Dimensions, feet (metres): 134.5 × 23.3 × 5.6 *(41 × 7.1 × 1.7)*
Main machinery: 2 Cummins diesels; 2 shafts
Speed, knots: 15. **Range, miles:** 500 at 14.5 kt
Complement: 10
Military lift: 16 tons and 50 troops
Guns: 2 ZU-23-2MR Wrobel 23 mm/87 (1 twin).
2—12.7 mm MGs.
Radars: Navigation: I-band.

Comment: Ordered from Poland in October 1999 and delivered in mid-2001. AK-630 CIWS may also be fitted at a later date.

UPDATED



ABDULKORI (on transport ship) *5/2001, J Ciślak /* 0131342

2 ONDATRA (PROJECT 1176) CLASS (LCU)

13 **14**

Displacement, tons: 145 full load
Dimensions, feet (metres): 78.7 × 16.4 × 4.9 *(24 × 5 × 1.5)*
Main machinery: 1 diesel; 300 hp(m) *(221 kW)*; 1 shaft
Speed, knots: 10. **Range, miles:** 500 at 5 kt
Complement: 4
Military lift: 1 MBT
Radars: Navigation: Spin Trough; I-band.

Comment: Transferred from USSR January 1983. Has a tank deck of 45 × 13 ft.

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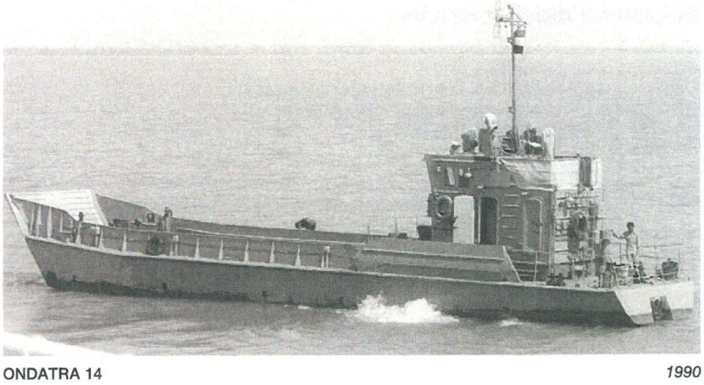

ONDATRA 14 *1990*

1 T4 CLASS (LCM)

134

Displacement, tons: 93 full load
Dimensions, feet (metres): 65.3 × 18.4 × 4.6 *(19.9 × 5.6 × 1.4)*
Main machinery: 2 diesels; 316 hp(m) *(232 kW)*; 2 shafts
Speed, knots: 10
Complement: 4

Comment: Reported to have paid off in 1995 but still in service.

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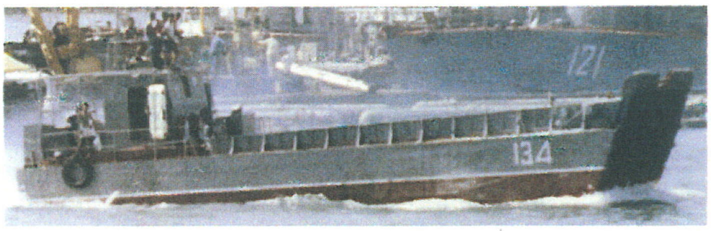

T4 134 *1/1990* / 0016614

MINE WARFARE FORCES

1 NATYA CLASS (PROJECT 266ME) (MINESWEEPER—OCEAN) (MSO)

201

Displacement, tons: 804 full load
Dimensions, feet (metres): 200.1 × 33.5 × 10.8 *(61 × 10.2 × 3)*
Main machinery: 2 Type M 504 diesels; 5,000 hp(m) *(3.67 MW)* sustained; 2 shafts; cp props
Speed, knots: 16. **Range, miles:** 3,000 at 12 kt
Complement: 67
Guns: 4—30 mm/65 (2 twin); 500 rds/min to 5 km *(2.7 n miles)*; weight of shell 0.54 kg.
4—25 mm/80 (2 twin); 270 rds/min to 3 km *(1.6 n miles)*; weight of shell 0.34 kg.
A/S mortars: 2 RBU 1200 five-tubed fixed launchers; range 1,200 m; warhead 34 kg.
Mines: 10
Countermeasures: MCM: Carries contact, acoustic and magnetic sweeps.
Radars: Surface search: Don 2; I-band.
Sonars: MG 69/79; hull-mounted; active minehunting; high frequency.

Comment: Transferred from USSR in February 1991. Operational status doubtful. A second of class was delivered to Ethiopia in October 1991 but sheltered in Aden for a time in 1992.

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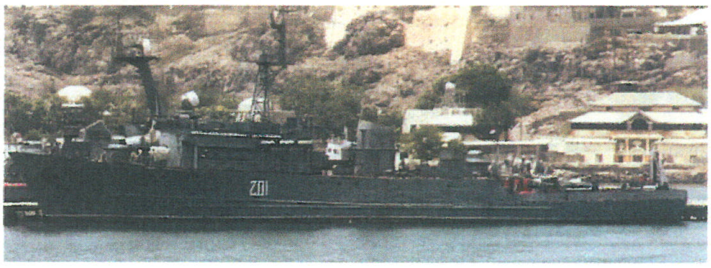


NATYA 201 *6/2002, Rahn/Globke* / 0530089

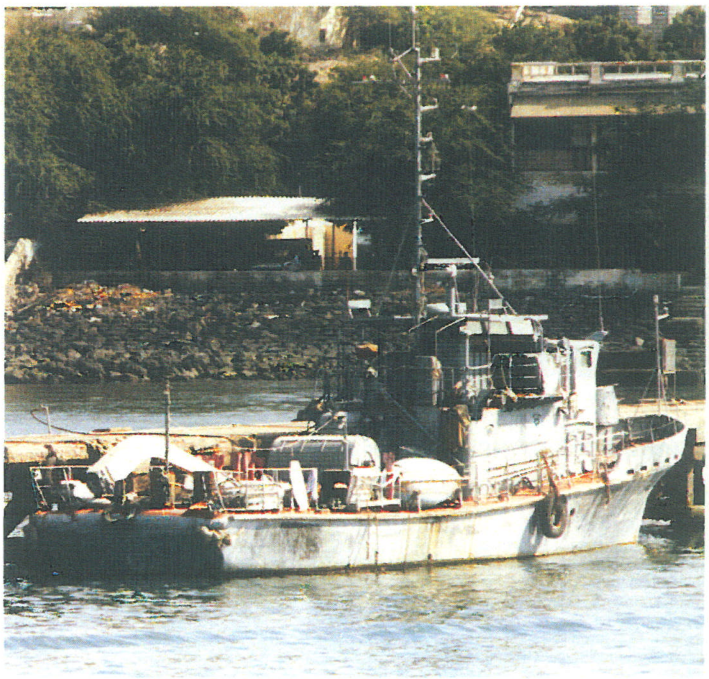
5 YEVGENYA (PROJECT 1258) CLASS (MINEHUNTERS) (MHC)

11 12 15 20 +1

Displacement, tons: 90 full load
Dimensions, feet (metres): 80.7 × 18 × 4.9 *(24.6 × 5.5 × 1.5)*
Main machinery: 2 Type 3-D-12 diesels; 600 hp(m) *(440 kW)* sustained; 2 shafts
Speed, knots: 11. **Range, miles:** 300 at 10 kt
Complement: 10
Guns: 2—25 mm/80 (twin).
Radars: Navigation: Spin Trough; I-band.
Sonars: MG 7 small transducer lifted over stern on crane.

Comment: GRP hulls. Two transferred from USSR in May 1982, third in November 1987 and three more in March 1990. One deleted in 1994. Two based at Aden and three at Al Katib. At least two are fully operational.

VERIFIED



YEVGENYA 20 *2/1997* / 0016615

AUXILIARIES

Notes: (1) A 4,500 ton Floating Dock acquired from the USSR.
(2) A 14 m Hydrographic craft acquired from Cougar Marine in 1988.
(3) An oil-pollution control craft acquired in 1999.
(4) Two 'Toplivo' class tankers, *135* and *140*, are reported to have been decommissioned.

Zimbabwe

Country Overview

The Republic of Zimbabwe gained independence on 17 April 1980. Formerly the British colony of Southern Rhodesia and, between 1953 and 1963, part of the Federation of Rhodesia and Nyasaland (now Malawi), a unilateral declaration of independence on 11 November 1965 precipitated a turbulent period of guerilla war. This eventually led to a peace settlement in 1979 and elections in 1980. A landlocked country with an area of 150,873 square miles, it is situated in central southern Africa and is bordered to the north by Zambia, to the east by Mozambique, to the south by South Africa and to the west by Botswana and Namibia. It has a shoreline of approximately 350 n miles with Lake Kariba, artificially formed by the Kariba Dam, from which the country gets much of its electric power. The capital, largest city and commercial centre is Harare (formerly Salisbury). The railway system is linked to the port of Beira in Mozambique.

Bases

Kariba, Binga.

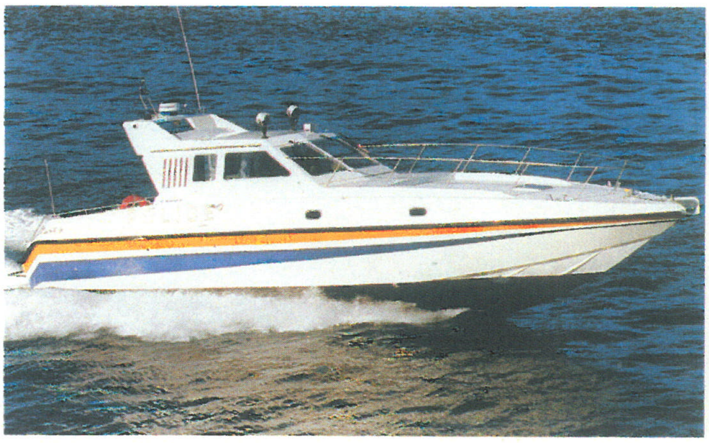
PATROL FORCES

2 RODMAN 46HJ CLASS (PB)

Displacement, tons: 12.5 full load
Dimensions, feet (metres): 45.9 × 12.5 × 2.0 *(14.0 × 3.8 × 0.6)*
Main machinery: 2 Caterpillar 3280 diesels; 850 hp *(633 kW)*
Speed, knots: 30. **Range, miles:** 350 at 18 kt
Complement: 4

Comment: GRP hull. Built in 1999 by Rodman, Vigo. Operated by Zimbabwe Police.

NEW ENTRY



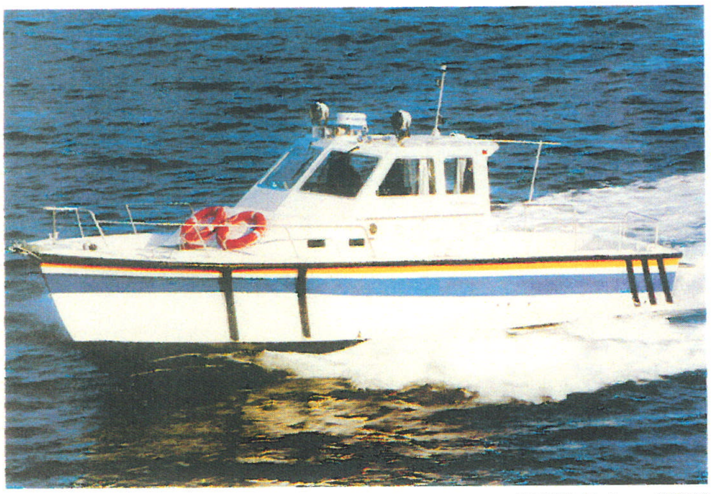
RODMAN 46
*6/1999**, *Rodman* / 0570998

3 RODMAN 38 CLASS (PB)

Displacement, tons: 10 full load
Dimensions, feet (metres): 36.1 × 12.8 × 2.3 *(11.0 × 3.9 × 0.7)*
Main machinery: 2 diesels; 2 waterjets
Speed, knots: 28. **Range, miles:** 300 at 15 kt
Complement: 4

Comment: GRP hull. Built in 1999 by Rodman, Vigo. Operated by Zimbabwe Police.

NEW ENTRY



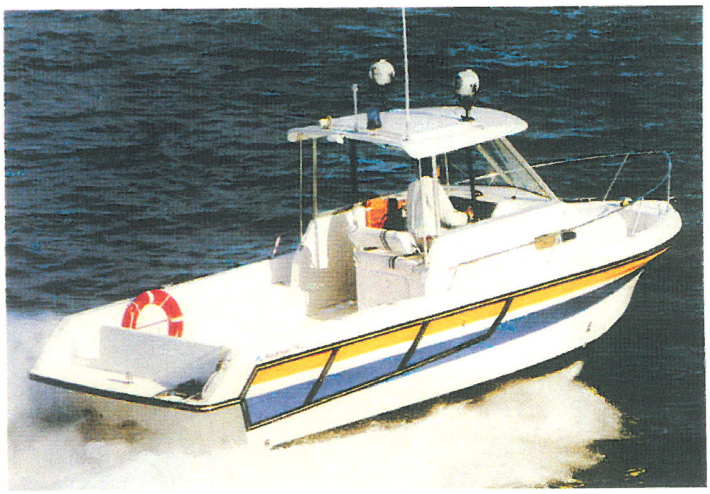
RODMAN 38 *6/1999*, Rodman /* 0571000

5 RODMAN 790 CLASS (PB)

Displacement, tons: 2.4 full load
Dimensions, feet (metres): 26.6 × 8.9 × 2.3 *(8.1 × 2.72 × 0.7)*
Main machinery: 2 Volvo Penta TAMD diesels
Speed, knots: 30
Complement: 2

Comment: GRP hull. Built in 1999 by Rodman, Vigo. Operated by Zimbabwe Police.

NEW ENTRY



RODMAN 790 *6/1999*, Rodman /* 0570999

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Country abbreviations

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Alg	Algeria
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Ant	Antigua and Barbuda
Arg	Argentina
Aus	Austria
Aust	Australia
Az	Azerbaijan
Ban	Bangladesh
Bar	Barbados
Bel	Belgium
Ben	Benin
Bhm	Bahamas
Bhr	Bahrain
Blz	Belize
Bmd	Bermuda
Bol	Bolivia
Bru	Brunei
Brz	Brazil
Bul	Bulgaria
Cam	Cameroon
Can	Canada
Cay	Cayman Islands
Chi	Chile
CI	Cook Islands
CtI	Côte d'Ivoire
Cmb	Cambodia
Col	Colombia
Com	Comoro Islands
ConD	Congo, Democratic Republic
CPR	China, People's Republic
CpV	Cape Verde
CR	Costa Rica
Cro	Croatia
Cub	Cuba
Cypr	Cyprus (Republic)
Den	Denmark
Dji	Djibouti
Dom	Dominica
DPRK	Korea, Democratic People's Republic (North)
DR	Dominican Republic
Ecu	Ecuador
Egy	Egypt
ElS	El Salvador
Eri	Eritrea
Est	Estonia
ETim	East Timor
Fae	Faeroe Islands
Fij	Fiji
FI	Falkland Islands
Fin	Finland
Fra	France
Gab	Gabon
Gam	Gambia
GB	Guinea-Bissau
Ger	Germany
Geo	Georgia
Gha	Ghana
Gn	Guinea
Gra	Grenada
Gre	Greece
Gua	Guatemala
Guy	Guyana
HK	Hong Kong
Hon	Honduras
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Ice	Iceland
Ind	India
Indo	Indonesia
Iran	Iran
Iraq	Iraq
Ire	Irish Republic
Isr	Israel
Ita	Italy
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Jor	Jordan
Jpn	Japan
Kaz	Kazakhstan
Ken	Kenya
Kir	Kiribati
Kwt	Kuwait
Lat	Latvia
Lby	Libya
Leb	Lebanon
Lit	Lithuania
Mad	Madagascar
Mex	Mexico
MI	Marshall Islands
Mic	Micronesia
Mld	Maldives
Mlt	Malta
Mlw	Malawi
Mly	Malaysia
Mor	Morocco
Moz	Mozambique
Mrt	Mauritius
Mtn	Mauritania
Myn	Myanmar
Nam	Namibia
NATO	NATO
Nic	Nicaragua
Nig	Nigeria
Nld	Netherlands
Nor	Norway
NZ	New Zealand
Omn	Oman
Pak	Pakistan
Pan	Panama
Par	Paraguay
Per	Peru
Plp	Philippines
PNG	Papua New Guinea
Pal	Palau
Pol	Poland
Por	Portugal
Qat	Qatar
RoK	Korea, Republic of (South)
Rom	Romania
Rus	Russian Federation
SA	South Africa
Sam	Samoa
SAr	Saudi Arabia
Sen	Senegal
Ser	Serbia and Montenegro
Sey	Seychelles
Sin	Singapore
SL	Sierra Leone
Slo	Slovenia
Sol	Solomon Islands
Spn	Spain
Sri	Sri Lanka
StK	St Kitts
StL	St Lucia
StV	St Vincent and the Grenadines
Sud	Sudan
Sur	Suriname
Swe	Sweden
Swi	Switzerland
Syr	Syria
Tan	Tanzania
Tld	Thailand
Tkm	Turkmenistan
Tog	Togo
Ton	Tonga
TT	Trinidad and Tobago
Tun	Tunisia
Tur	Turkey
Tuv	Tuvalu
Twn	Taiwan
UAE	United Arab Emirates
UK	United Kingdom
Ukr	Ukraine
Uru	Uruguay
USA	United States of America
Van	Vanuatu
Ven	Venezuela
VI	Virgin Islands
Vtn	Vietnam
Yem	Yemen
Zim	Zimbabwe

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